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DIESEL RAILWAY TRACTION SUPPLEMENT

The September issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on September* 1, *price* 1*s.*

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from* 9 *in.* × 12 *in. to* 8¼ *in.* × 11½ *in. The type area of the page remains the same, namely,* 7 *in.* × 10 *in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Government and Industry

THE widespread changes which have been wrought by the war in the economic structure, primarily of the nations engaged in the present conflict, and also because of the world-wide repercussions of the struggle, necessarily have been reflected in a change in the outlook of many so far as concerns the post-war period. The experience of the war, and indeed of those years immediately preceding it, has led many to conclude that in the future the State must have a far larger share, both in the direction, and responsibility for the maintenance, of trading. It is difficult indeed to envisage a speedy relaxation of Governmental controls, as at present exercised over many forms of industry and commerce, when the war has come to an end. For many years now all nations have been tending to acquire a commercial entity which in many cases has become more and more pronounced. This development is likely to be emphasised in post-war conditions, when competition will almost certainly be between nations rather than between commercial undertakings or industries. Then it is envisaged that the whole process of manufacture, from securing the raw material to the sale of the finished product, will be so organised that it will not permit of competitive rates or even of competing services within the individual nations.

A Changing Trend

Considerations such as the foregoing have no doubt lent their weight in the formation of a changing trend of thought which has been apparent in recent months on the vexed subject of the nationalisation of such essential national assets as the railways and other public utility undertakings. Possibly because of the widespread nature of Governmental control at the present time, both the erstwhile protagonists and opponents of nationalisation as a sovereign cure for all ills, real and imaginary, have been less insistent. On the one hand, the most modern fashion is to envisage large-scale monopolistic public corporations, operating on a system of remote control by Parliament; on the other, a steadfast refusal to tolerate any alteration in existing organisation in, for example, the railways, has given way to an anxiety to ensure that, should some change be necessitated by conditions of the times, the present proprietors should be adequately compensated, both for their enterprise in establishing these industries and their sacrifices which have made possible their development to the present vital position they now hold in the nation's economy. This changing trend marks a significant development in the outlook of a wide section of the community, and has at its base a recognition of the fundamental changes in economic thought and practice which many believe will form an essential part of the basis of post-war recovery.

Control of Alternative Fuels

The Government has decided that in future no road vehicle, whatever the fuel used, shall be allowed to operate for purposes which would not justify an issue of motor spirit or diesel oil, in view of the need for conserving not only fuel, but vehicles, tyres, and manpower. Since the outbreak of war the Government has rationed motor spirit, diesel oil, and certain home-produced liquid motor fuels such as creosote, but vehicles operating on other fuels, such as producer-gas, coal gas, steam, electricity, butane, and propane, have been allowed to have free access to whatever amounts of fuel have been available. The new control will be effected by two Orders under the Defence Regulations. The first, which will come into force on September 1, will prohibit running vehicles on fuels other than motor spirit or diesel oil except under a licence. Licences will be obtainable from the Regional Transport Commissioners of the Ministry of War Transport, and will be issued on condition (1) that the vehicle in-question is engaged upon essential work for which road transport is necessary (*i.e.*, work which would qualify for motor spirit or diesel oil); and (2) that the fuel is available. Owners of vehicles who intend to convert to alternative fuel operation should first obtain the necessary licence from the Regional Transport Commissioner. The second Order, which will bring an "alternative fuel" rationing scheme into operation, will be issued later. Generally, all alternative fuels are in short supply, and further conversions will not be possible in the case of several. Propane and butane are in such great demand for essential industry and for domestic purposes in rural areas that no licences will be issued, even to existing users. It is not, however, expected that this will be necessary in the case of users of other alternative fuels, and, subject to fuel supply limitations, it will be the general aim of the Government to secure as many additional conversions as possible, provided that the vehicles are doing work for which road transport is essential in the national interest. The measures now being brought into force will, however, ensure that all consumption of alternative fuels represents a corresponding saving of imported

fuel, and that any new conversions which take place, including producer-gas units under the scheme of the Ministry of War Transport, will be on vehicles required for essential purposes.

War Measures Affect Potential Railway Traffic

On another page we publish a contribution from a correspondent dealing with certain aspects of controlled traffic movement in wartime to which we drew attention in our July 24 issue. It was then pointed out that some of the schemes now in force might have the effect of working a revolution in the national market for certain goods which was the product of the railway era, and the basis of railway traffic. Our correspondent points out that two major schemes of the Ministry of Food, now in course of development, have not given proof that either, or both of them together, will achieve the primary object of effecting the total saving of transport, and he further suggests that if there is any net saving there is no evidence that it will be of an order to justify revolutionary changes of the kind involved. He maintains that these official schemes are based entirely on the distance factor and that they completely ignore the factors of both time and load. Moreover, they leave practically untouched wastes in food distribution through the lack of co-operation of demand on the transport services. The matters to which attention is drawn in the article in some respects will no doubt be considered controversial, but there can be no doubt of the importance of the issue raised, not only from the point of view of the desirability of the present schemes, which may well be deemed necessary in existing circumstances, but also from the long-term viewpoint of their effect on the post-war plan of industry, commerce, and transport.

High Speed and Track Maintenance

Some interesting comments on the relation between the super-speed trains of today and the cost of track maintenance were made recently by Mr. H. R. Clarke, Chief Maintenance of Way Engineer to the Chicago, Burlington & Quincy RR., in an address to an American engineering convention. The fact that his company's diesel-operated Zephyr trains have some of the fastest schedules in the world, including pass-to-pass schedules up to and slightly exceeding 100 m.p.h., well qualifies him to speak with authority on this subject. In stepping up maximum speeds from 70 to 100 m.p.h., work on the track had been necessary for reasons of both safety and comfort, the extent of which had depended on the previous standard of maintenance of each route concerned, but no abnormal expenditure under this head had been incurred by any American railway running high-speed services. Some permanent increase is involved in keeping the track in order for 100 m.p.h. speeds, but this is mostly a matter of careful attention to detail, and, above all, of not post-poning work that needs to be done, and here also the added costs are really small. Conversely, it is Mr. Clarke's considered opinion that if the streamliners were taken off, and if the remaining passenger trains were slowed down, the possible reduction in maintenance expenditure would be negligible; even if all passenger services were withdrawn, so that appearance and smooth riding ceased to be major controlling factors, there would be relatively little economy. That is to say, the cost of high speed from the track point of view is considerably less than has often been represented. In these days it is the rapid increase in freight movement that is having the greatest effect on track wear-and-tear, and with the urge to make the maximum possible use of freight stock, this is likely to have a still more intensive effect on track in the future.

Railway-owned Collieries in India

An activity of the Indian railways little known in this country takes the form of ownership and working of no fewer than 10 collieries. Four of these are owned by the State Railways and the ownership of three others is shared by them with company-worked lines. The total output during the year ended March 31, 1941, amounted to 3,475,000 tons of coal, of which just over one million tons were mined at the Joint Bokaro colliery owned by the East Indian and Bengal-Nagpur Railways. The three collieries owned entirely by State Railways in that year together yielded over 1,400,000 tons; the fourth now State-owned, but then belonging to the Bombay, Baroda & Central India Railway, produced over 280,000 tons. The method of mining is mainly by means of inclines or quarry faces. Shafts are, however, also used. At least one disused mine was reopened during 1940-41, and preliminary work was carried out at another pit that has been submerged for over 30 years to prove the quantity of coal available in that area; what has so far been uncovered is of first class quality. By-products such as coal tar, sulphate of ammonia, benzol and rect. solvent naphtha are commercialised, the quantity of benzol produced annually being about 41,500 gallons. Nearly 28,000 tons of coke were also produced in 1940-41. It is of interest to note that during that year over 26,000,000 tons of coal in all were mined in British India, an increase of nearly 1½ millions over the 1939-40 figure. Of this total 15,400,000 tons were carried by the East Indian and nearly 10,000,000 tons by the Bengal-Nagpur Railway. In peacetime large quantities are railed to Calcutta for bunkering shipping, but greatly increased quantities are now carried across India from the coalfields in Bengal to Bombay by rail, as coast-wise shipping is extremely limited.

Water-Trough Location

The location of water-troughs is a matter that calls for considerable care. A stretch of level track is, of course, a *sine qua non*, and, furthermore, one with no more than relatively slight curvature. Cheap and abundant water supply is also desirable, though in these days of widespread water softening the quality of the water available is a matter of less importance than it was at one time. Over any main route, a roughly equal spacing between troughs is desirable. Perhaps the most remarkable development, prior to the grouping, in the use of water troughs, in relation to the limited size of the system concerned and its extremely heavy gradients, was on the Lancashire & Yorkshire Railway, which had ten sets of troughs laid down, and equipped all its locomotives other than shunters, tender and tank alike, with pick-up apparatus in order to expedite its train working to the maximum possible degree. With little doubt the most unusual location for water-troughs in this country (and probably in the world) was that selected by the late London & North Western Railway for one of its 17 installations—that between Huddersfield and Stalybridge on the Leeds—Manchester main line. In the entire 43 miles of this route the only level stretch is through the 3 miles of Standedge tunnel, which is roughly at the midway point and at the summit of long approach grades which help to empty the engine tenders. At the western, or Diggle end of the tunnel, therefore, these troughs have been laid down, actually inside the tunnel for the whole of their length—hardly the most desirable, but in this instance an unavoidable site.

An American Railway Blacks Out

The most intensive methods have been introduced on the Southern Pacific Railway with a view to keeping the traffic moving as normally as possible during blackouts. With the beginning of the present emergency considerable confusion arose which, in some instances, practically stopped train operation during the blackout. This was contrary to the desires and needs of the army and the navy, each of which was calling on the railways for the greatest effort in the prompt handling of materials, equipment, and men. Hastily-arranged conferences between representatives of the railway, the army, the navy, and regional defence organisations were called, and these conferences resulted in one major conclusion, namely, that the railways, in so far as possible, must continue their train operation during the blackout. The measures subsequently taken have made it possible for all offices, stations, and other buildings on the railway to be prepared to blackout at a moment's notice with the least interference with normal operations. Signals, shunting, and exterior train lights have been hooded to prevent visibility from above, and special precautions are taken to blot out all interior train lighting, firebox flashes, and even steam and smoke from locomotives that might conceivably assist enemy airmen. The headlights on locomotives and those attached to dwarf signals have been effectively hooded to prevent the light showing upwards, and, similarly, all train order, interlocking, and automatic block signals have been shielded with sheet-iron shields, varying in shape and size to meet the different types of units involved.

Lesson of a Tunnel Accident

The accident in the Falkirk Tunnel, L.N.E.R., on June 18, 1942, when a down train struck four men of a relaying gang, proceeding to the far end of the tunnel for dinner, killing three and injuring one, again emphasises the paramount importance at all times on the permanent way of moving perfectly clear of all lines, as ordered by rule, when a warning is given or a train known to be coming. Mr. J. L. M. Moore's report, summarised at page 211, shows that an up train—for which the lookout men, though no longer on duty, gave warning—

approached and almost everyone moved to the downside. Whether the men struck by the other train, which was not heard, had merely continued walking irregularly on the down line, or moved clear at first and began so walking after the up train had passed, was not definitely settled, but the latter alternative appeared the more probable. Mr. Moore hopes that the facts of this regrettable incident will be made widely known, as a warning lesson, and finds nobody to blame but those who came to harm.

Assisting Locomotives

The existence in any main line of railway of severe but strictly localised gradients raises the question as to whether it is more economical to provide pilot or banking assistance for the grades alone, stopping each train for the purpose, or, if the inclinations are not too steep, providing locomotives of such power for the through run that in all normal conditions of maximum loading they can take the obstacle in their stride. As specific examples there may be mentioned the Lickey incline on the L.M.S.R. West of England main line, 2 miles at 1 in 37¾; the southern approaches of the same company to Shap and Beattock summits on the West Coast main line; or the G.W.R. from Newton Abbot to Plymouth, with its 1 in 37 to 1 in 42 inclines. For the Lickey the L.M.S.R. definitely adopts the banking plan, and not only maintains at Bromsgrove a fleet of banking engines constantly in steam, but stops every northbound train at Bromsgrove for assistance. Similar bankers are kept in steam at Tebay and Beattock for Shap and Beattock banks, but most of the express trains, especially if Pacific-hauled, manage the climbs without help, and unless the speed falls to an exceptionally low figure at the summit, save time by so doing—an important point both in meeting present demands for speed and also in clearing the block sections as quickly as possible. On the G.W.R., the general principle is to pilot all the heavier trains between Newton Abbot and Plymouth. Pilotage is always expensive, with its duplication of engine-crews and of engine wear-and-tear, but in such conditions it is probably cheaper in the end than building and operating locomotives of such power that they can tackle extreme local conditions that exist over but a fractional part of the routes that they cover.

Central Control of Wagons

THE most efficient use of railway wagons has been recognised since the beginning of the war as a matter of prime importance in the national effort, and every endeavour has been made to ensure that by speedy loading and unloading the quickest turn-round may be achieved. The problem of obtaining the maximum usage from a necessarily limited number of wagons is one which has had to be dealt with by all the belligerent countries. The methods whereby the British railways have organised their wagon resources are shown in some detail on another page; the success which has been achieved has been marked. Even during the extremely severe weather experienced in January and February this year, there was no interference with colliery working due to inadequate wagon supply. As many as 330,000 wagons of coal were despatched in one week in the winter, and many of them travelled a distance of over 400 miles. Further, the average turn-round of wagons at the collieries, excluding wagons used internally or awaiting repairs, was only 1·5 days. It may well be said, therefore, that the scheme has fully met the hopes of its sponsors, and that its success may be ascribed to the close collaboration between the railway and the colliery companies. The scheme which is now in operation and which is officially known as the Inter-Company Freight Rolling Stock Control, is a development of the "common user" which the railway companies operated before the war. That scheme, which was brought into being during the war of 1914-1919, had been gradually developed and it stood the test of time until the outbreak of the present conflict when a considerable change in the flows of traffic called for a more flexible arrangement. The present scheme includes the requisitioned private owners' wagons, of which in pre-war days there were over half-a-million belonging to more than 4,000 different owners.

Among the major considerations leading to the present organisation of wagon control, were the great changes in the dispersal of coal-class traffic which made necessary many alterations in the arrangements for the supply of empty wagons to the collieries. The ratio of inland to shipment coal is now remarkably different to what it was in peacetime, and had it not been for the requisitioning of private-owners' wagons, which allowed for the common control of these vehicles, there would have been very little scope for certain of the changes which have taken place. Before being taken over, most of the privately-owned wagons were used for coal-class traffic and were sorted according to ownership for return empty to specific collieries. The object of the requisitioning order was to increase the utility of the available wagon resources of the country, reduce empty and cross haulage, and minimise shunting operations, by permitting general use irrespective of previous ownership. With the interchangeability now possible between requisitioned privately-owned wagons and railway-owned wagons, 100,000 of the former, without detriment to the coal trade, are being used weekly for back loading with suitable traffics, instead of being returned empty direct to the collieries. Empty wagons of all types, irrespective of ownership, are sent to the nearest point at which they are required to load, and wherever possible empty wagons are made up to avoid shunting and intermediate marshalling yards. The saving in empty haulage and shunting has been very great indeed and a measure of the improvement in efficiency which has attended the method of control is to be found in the four weeks ended March 21, 1942, when there was an increase of 21·92 per cent. in the loaded wagon miles compared with the corresponding period in 1939, and a decrease of 14·09 per cent. in the empty wagon miles.

Oil-Fired Boiler Data

WITH many engines built for, or converted to, oil-burning for service in eastern theatres of war, in addition to oil-burners built in this country for Argentina and other countries over a period of many years, it is useful to pass in review quantitive information as to the comparative performances of boilers with liquid and solid fuel firing. The most obvious difference in the boiler performances of oil-fired and coal-fired steam locomotives is that with the former there is no cinder or unburned fuel loss, which results generally in a higher combustion efficiency as the boiler is forced to higher rates of evaporation. The term "heat in fuel fired" may be used here instead of the more usual "firing rates," as giving, as a first stepping stone, a common denominator of the burning of the two fuels which may enable truer comparisons to be made. Compared with bituminous coal, the overall efficiency of the boiler and superheater in large boilers at low heat rates—say, up to 10 million b.t.u. in the fuel fired per hr.—may be slightly lower with oil; from that figure up to about 140 million b.t.u. per hr. the efficiency with oil firing is usually considerably higher, and may be practically constant from 70 or 80 million to 130 million b.t.u. per hr. Over this range, measured efficiencies in large boilers with a furnace volume of 800 to 975 cu. ft. varied from 76 to 72 per cent.; the maximum amount of oil burned was equivalent to 7·0/8·8 lb. per cu. ft. of firebox volume per hr., or 560/680 lb. per hr. per sq. ft. of gas area through the boiler. Gas areas are as important with oil as with coal firing, and navy types of oil-fired water-tube boilers having three times the gas areas of the boilers dealt with above can burn at least 35 per cent. more oil per cu. ft. with an efficiency of 6 to 8 per cent. greater.

On the other hand, few, if any, oil-fired locomotive boilers have yet been built which can burn more than about 200,000 b.t.u. per hr. per cu. ft. of firebox volume, whereas coal-burning locomotives with large fireboxes prolonged into combustion chambers have rates of 250,000 b.t.u. or more when using bituminous or semi-bituminous fuels. In the tests of one of the Pennsylvania 4-8-2 locomotives a value as high as 650,000 b.t.u. per cu. ft. per hr. was recorded at a high firing rate, when the boiler efficiency was only 50 per cent. Of course, some of this loss in low firing capacity is made up by the higher efficiency of oil-burning boilers. For example, the 4-8-4 express locomotives of the Atchison, Topeka & Santa Fe Railroad when burning oil at the rate of 165,000 b.t.u. per cu. ft. per hr. (equivalent to 8·8 lb. per cu. ft. per hr.) have an overall efficiency through boiler and superheater of 72 per cent., whereas at the same total heat rate (equal to about 82 lb. per sq. ft. of grate per hr., or 12 lb. per cu. ft. of firebox volume per hr.), the coal-burning Pennsylvania 4-8-2 engines have an efficiency of only 60 per cent., and the Chicago, Burlington & Quincy Railroad's 2-10-4 engines (at 75 lb. per sq. ft. of grate and 11·8 lb. per cu. ft. of firebox volume per hr.), 64 per cent. Contrarily, a few steam locomotives show a coal-burning boiler efficiency equal to that of the oil-burners up to heat rates of 170,000 b.t.u. per cu. ft. per hr. or thereabouts. For example, the latest New York Central 4-6-4 engines at 165,000 b.t.u. per cu. ft. per hr. (equivalent to 65 lb. of coal per sq. ft. of grate and 11¾ lb. per cu. ft. of firebox volume per hr.) show an overall boiler and superheater efficiency of 74 per cent. As to superheating, it has been pointed out that oil-fired boilers in general give a higher superheated steam temperature than is obtained in coal-burning boilers, and there is a body of opinion which believes that the reason for this is that the less luminous flames of the oil fire yield a smaller percentage of heat by radiation to the firebox, and the gases entering the flues therefore are hotter. It might seem that such a statement as to the luminosity of the flames in coal- and oil-burning fireboxes is the reverse of true, but apparently boiler tests have demonstrated that the radiation from the flames of a coal-burner is due largely to incandescent particles of fuel therein, and not to the flames themselves.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Standard Station Signs

236, Hook Road,
Surbiton, Surrey
August 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The interesting photographs of signs in your issue of July 31 are a reminder of the obsolete manner in which the names of British stations are, with very few exceptions, erected. May we hope that as and when our station names are being replaced, they may be fixed at an angle to the running lines wherever fast trains run through stations?

In your photograph of Kingston platform, the sign is in the old position, parallel to the lines. As a matter of fact, it does not greatly matter at Kingston, since no fast trains run through that station but, who has not been irritated at being unable to read the name of a local station when vainly trying to locate one's position in a journey? Station names at an angle remain in view much longer and can be more easily read from a moving train.

Yours faithfully,
A. F. CROSS

British Railways and After-War Competition between Nations

Thaxted
August 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The comments on the post-war situation of the railways which have recently appeared in your columns are both interesting and valuable, but, as it seems to me, there is everywhere a tendency to ignore the probability that when the day for reconstruction appears no one will be a free agent. We may argue today that such and such a development is desirable but, on the termination of the war, we shall almost certainly discover that what is theoretically desirable is in practice unobtainable.

I could, I believe, make a strong case against a state-owned railway system; at any rate in this country. The very idea of such a thing is probably anathema to experienced railway officials and to those politicians who have contrived to retain a standard of values. Further, amongst the public there is absolutely no leaning in that direction—on the contrary, the man in the street instinctively suspects the strait-jacket in which the governments of Italy and Germany have confined the great industries of those countries. All the same, I am inclined to ask whether any alternative to a state-controlled transport system will be a possibility when peace returns to us?

About ten years ago I commented in print on what I dubbed on the spur of the moment the "growth of the unit." I pointed out that: "Small shops become a great store; buildings of varying dimensions are replaced by a single office block; a group of independent companies gives birth to a combine." But this process, gradual but continuous, will in fact receive a terrific stimulus from present events. The size of the unit and the perfection of its organisation will be found to be a condition indispensable to survival. Accustomed as we are to regard the State merely as a political or social entity, we are apt to overlook the fact that for many years past all nations have tended to acquire a commercial entity which in many instances has become more and more pronounced. It is this commercial entity which must, I believe, become an outstanding feature in post-war development. In short, I anticipate that in the post-war era competition will not be competition between this and that company or even between this and that industry, but that such competition as there is will be competition between nations in which the whole process of manufacture, from the collection of the raw material to the sale of the finished article, will be scientifically organised to an extent that will not permit of competitive rates or even of competing services within the nation itself.

Thus I envisage the future of the railways only as a future in which they will function as part of a vast network of transport covering both land and sea, and which in itself will be no more than one of a number of factors co-ordinated in the national effort. It can be argued, of course, that total commercial effort will prove to be as dangerous to the world as total warfare in the sense that sooner or later the one will lead to the other, that the only sure and certain peace must be a peace based upon community of interests. The argument is certainly sound. But at the moment I am concerned not with what is wise but with what is probable. All the probabilities point to an intensive and more or less scientific organisation of our national industries under enthusiastic, eloquent and, in the long run, probably idiotic leadership.

Doubtless the idea of "total" commercial effort is as foreign to us as that of total warfare, but necessity is a hard master. We have sold our birthright for a mess of pottage and it only remains to eat it. We can afford to purchase abroad only in so far as we ourselves can sell, no longer can we pay from foreign-invested funds. Our ability to manufacture and to sell must acquire a new and pregnant meaning. In short, unless I am mistaken, this country must be organised for peace quite as stringently as it has been organised for war and from that organisation transport cannot stand aloof. It is precisely this truth which I wish could be forced upon the notice of everyone to whom our railways mean something. In our railways we hold a factor absolutely essential to the coming reconstruction. The terms upon which this key industry will be acquired for the national service must in the last resort depend upon those of us who own it, upon our appreciation of our rights and our duties and the courage with which we defend the one and discharge the other.

Yours very truly,
ASHLEY BROWN

"The Other Man's Point of View"

19, Whitehall Road, Uxbridge
August 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The very appreciative article entitled "The Other Man's Point of View" greatly interests me. Particularly was I interested in regard to the Canadian National and Baltimore-Ohio Railways of North America and their suggestions schemes. It is stated that of 32,160 suggestions made no fewer than 27,715, or 86 per cent., have been adopted. These figures, I think, are remarkable and gratifying. The reason, obviously, of the great success of the schemes is due to their very efficient organisation. Railways of this country would do well to organise in a like manner. It has always been my firm opinion that representatives of the men should adjudicate on the suggestions schemes with the companies' representatives, and it is to be hoped in time this will come about. During my 17 years on the G.W.R. I have forwarded over 400 suggestions, a fact I am proud of. Although my success has been fairly good, I am of opinion that it would have been far better if our scheme had been operated on the same method as the North American railway schemes. It is a well known fact among those who make them that many fine suggestions made are turned down due to certain officials doing all in their power to make any good suggestion look bad—reason, obvious. The average railwayman knows this, and for this reason will not interest himself in the scheme. Motto, British railways, do away with this serious failing and make the scheme more attractive. Please convey my thanks to the author of the article.

Yours truly,
HAROLD V. KING,
District Relief Porter, Slough, G.W.R.

Value of "The Railway Gazette"

Windsor House,
46, Victoria Street, S.W.1
August 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You have recently been good enough to lend me several volumes of THE RAILWAY GAZETTE dating back for 20 years or more, and I have been very carefully through them.

I cannot help writing to say how impressed I am at the uniform excellence of the production, at the great utility of the technical articles, and at the wisdom (frequently prophetic) of the "editorials." Having read THE RAILWAY GAZETTE for some 40 years, it may be I should not be impressed anew, but reading through several volumes of past history in quick succession made me feel that every railway officer and railway student can well look upon the journal as a "Standard Book of Reference."

Long may THE RAILWAY GAZETTE prosper to serve its useful purpose.

Yours sincerely,
GILBERT S. SZLUMPER

DIESEL LOCOMOTIVES IN GERMANY.—It is reported that production of diesel locomotives in Germany has been suspended. Exceptions are being made for export orders for which materials have been supplied, and for spare parts and components. Completion of existing orders is permitted where construction is more than half finished.

THE SCRAP HEAP

Royal Travel on the G.W.R.

On May 25, 1903, the Prince of Wales (afterwards George V) formally named the new station at Park Royal when he went there as President of the Royal Agricultural Society to inspect the new works and sidings constructed for the coming show. His special train was the first to carry passengers over the newly-made line from Old Oak Common to Park Royal.

* * *

Mrs. Malaprop was giving her reasons for preferring a slower train to the crack non-stop flyer. Having exhausted all the usual arguments and deprecated the present-day mania for speed, she clinched the matter by stating that *from her own experience* the trains today were much too *fast* and there was far too much *osculation* on them.—*From "The Best Railway Stories."*

* * *

Bureaucracy

A Lewes trader who sells only from a hand barrow from door to door has been told by the Ministry of War Transport that he must conform to a local traders' delivery restriction scheme designed to save petrol and tyres, cease to push his barrow, and stand in a central place. His business is consequently languishing. Only a bureaucratic mind could see the saving in petrol and tyres in restricting the activities of a hand-pushed barrow. But what about boot leather? Why has not the Leather Control of the Supply Ministry clamped down on the Lewes trader and finished off his business completely? Why has not the Ministry of Food revoked his licence as a street vendor of fruit and vegetables in order to help the Ministry of Transport save wear and tear of the local roads?—*From "The Evening News."*

Advertising

The principal economic and social advantage of advertising is that it decreases the costs of production, as all skilled users of publicity have proved to their own satisfaction over and over again. In this machine age, production on a small scale must always be costly compared with large-scale production, and advertising makes possible the wide demand which ensures plants of economic size as well as efficient distribution. . . Mr. Pringle is very wide of the mark when he says that if the State becomes the sole producer in all industries, then "of course" advertising will become unnecessary. Far from this being the case, the State would have the greatest need in its history for advertising.—*Lord Kemsley, in a letter to "The Times."*

* * *

"Is Your Journey . . . ?"

Railway travellers who are confronted just now with the notice "Is your journey necessary?" will probably learn with surprise that a similar question was put to intending passengers on the Liverpool-Manchester Railway over a hundred years ago. When the regulations were framed for the railway inauguration in 1830, the first two were as follows:—

"(1) Any person desiring to travel from Liverpool to Manchester, or *vice-versa*, or any portion of the journey thereof, must, twenty hours beforehand, make application to the station agent at the place of departure, giving his name, address, place of birth, age, occupation, and reason for desiring to travel; (2) the station agent, upon assuring himself that the applicant desires to travel for a just and lawful cause, shall thereupon issue a ticket to the applicant, who shall travel by the train named thereon."—*From the "Liverpool Daily Post."*

"Beg pardon, but which platform did you say for Derby?"

[Reproduced by permission of the proprietors of "Punch"]

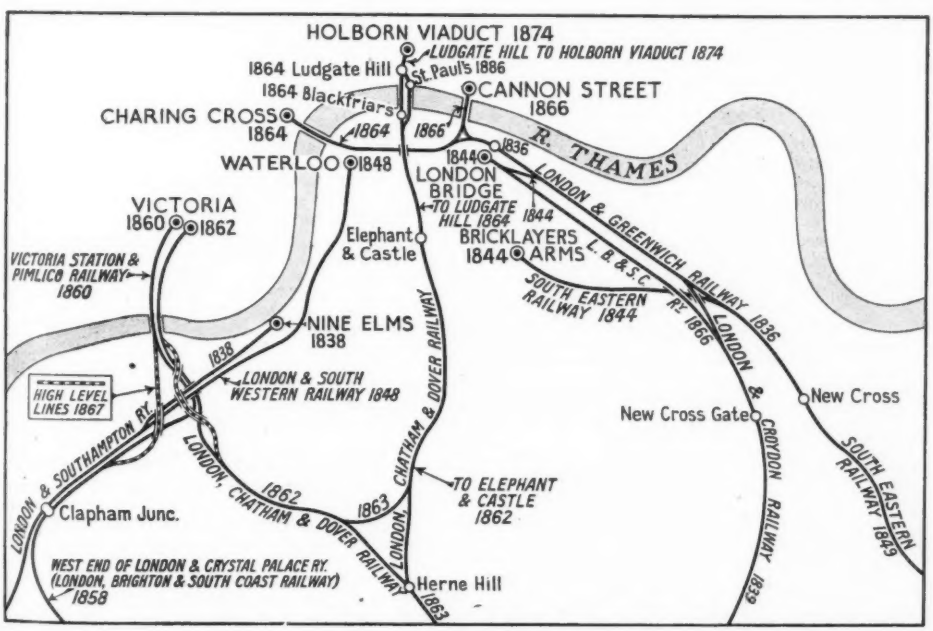
Up and Down Stairs

It is said that one of the ways in which we are to economise in the use of power, and so of fuel, is to be by an appeal for a reduction in the use of lifts. This may possibly be a boon to men who find themselves short of exercise in wartime if we remember the saying attributed to Joseph Chamberlain that to walk up to bed every night and down again in the morning was exercise enough for any man. . . Even in the winter of 1940 in London, when there were no lifts working at some of the very deep Tube stations, people who had to walk up what seemed to be endless staircases (where there were no escalators) thought themselves terribly ill-used. However, when "Walk up stairs and win the war" is the slogan no doubt the citizen will conform as usual and find something funny in the process—also as usual.—*From "The Manchester Guardian."*

* * *

Living Up To Its Name

The Spitfire *Flying Scotsman*, which was subscribed for by all grades of the L.N.E.R. staff, is piloted by the commander of the Natal Squadron, to which it is attached. This fighter squadron, unlike many others, has had the opportunity of shooting up enemy minesweepers, and *Flying Scotsman* has taken a prominent part in such attacks, as well as in other operations, and recently destroyed one of the new German FW 190 fighters. The motto of the Natal Squadron, "Onward," appropriately corresponds to that of the L.N.E.R., which is "Forward."



In our issue of July 10 we published a diagram showing the opening dates of London's northern railway termini. This aroused so much interest that we now publish the above showing those of the southern main-line termini

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

The Soo Line

The Interstate Commerce Commission recently amended its plan for the reorganisation of the Minneapolis, St. Paul & Sault Ste. Marie Railway (Soo Line), which is a subsidiary of the Canadian Pacific Railway, in order to ensure to the latter an effective working control of the reorganised company. The commission's original order gave the C.P.R. an option to buy 25 per cent. of the common stock of the reorganised Soo Line at $2 a share; but the amended plan will allow it the right to vote approximately 45 per cent. of the total Soo Line common stock, which would be given by the amount of the option stock, increased to 33 per cent., together with stock issued to the Canadian Pacific for bonds which it had guaranteed. The reorganisation plan provides also for an eight-year extension from January 1, 1951, of a traffic agreement between the C.P.R. and the Soo Line.

UNITED STATES

The Colorado Eagle

On June 21 the Missouri Pacific RR. put into operation the Colorado Eagle, a diesel-hauled streamliner, over the 1,021-mile route between St. Louis, Kansas City, Pueblo, and Denver, with a through sleeping car between Wichita and Denver, attached to the westbound train at Geneseo, and detached at the same point on the eastbound run. Departure from St. Louis is at 4 p.m., and arrival at Denver is at 8.45 a.m., a total journey (allowing for the change to mountain time) of 17¾ hr., and an overall average, including stops, of 57·5 m.p.h. On the return journey, departure from Denver is at 5 p.m., and arrival in St. Louis is at 12.30 p.m., a total journey of 18½ hr. The Colorado Eagle replaces the Scenic Limited, with an acceleration of roughly 2½ hr. each way, and makes the same connections as the latter at Colorado Springs with the Denver & Rio Grande's service *via* the Royal Gorge for Salt Lake City and beyond. The major part of the stock used in its formation has been running already for some months on the Missouri River Eagle service, allowing the train-sets of the latter to be put through a general overhaul; and the diesel-electric locomotive units have been in use on the Scenic Limited for a considerable time past. Suppression of the Scenic Limited has released 20 modern all-steel cars for service elsewhere.

Missouri Pacific Decelerations

In introducing the Colorado Eagle, the Missouri Pacific RR. has followed a similar course to that adopted by several American railways under war conditions, balancing this new and accelerated service by a deceleration of certain other trains over the same route. For example, No. 15 westbound (the Royal Gorge) now leaves St. Louis at 1.40 p.m. instead of at 4 p.m., but (with additional stops) reaches Pueblo at 11.45 a.m. as previously. No. 14 eastbound still leaves Kansas City at 4.25 p.m., but is due in St. Louis at 9.55 p.m., instead of at 9.35 p.m. On the M.P.RR. main line to the South, the Sunshine Special continues to leave St. Louis at 5.30 p.m., but is slowed 20 min. to Little Rock, 65 min. to Dallas, 70 min. to Houston, and 95 min. to Laredo, on the Mexican frontier, 1,077 miles from St. Louis, which is not reached until 10.25 p.m. the next day. The southbound Texan, leaving St. Louis at 2 p.m., also is decelerated by 45 min. to Dallas, 50 min. to Fort Worth, and 55 min. to Houston; the 816 miles to Houston now take 20 hr. 25 min., with many intermediate stops.

Abandonment of Lines in Kansas

An extensive abandonment of lines in Kansas and Oklahoma, totalling 193½ miles, is sought by the Atchison, Topeka & Santa Fe RR. from the Interstate Commerce Commission. It comprises the following sections: Benedict Junction to Emporia, 63½ miles; Madison Junction to Moline, 60 miles; Anthony to Cherokee, 32½ miles; Florence to Eldorado, 27½ miles; and Iowa to Gerlane, 10 miles. This is the largest single abandonment sought by any American railway for some time past.

Converting Luxury Stock

A sign of the times is seen in the conversion by the Chicago & North Western RR. of eleven parlour and cafe-lounge cars of the conventional type into coaches. In the U.S.A., coaches and parlour cars correspond roughly to the distinction between British third class and first class, and the re-seating on coach lines of these luxury vehicles has increased considerably their accommodation. Such increased seating is an imperative necessity in order to meet the demands now being made on the railways, due to diversion of passenger traffic from the roads.

The Morganza Viaduct

In connection with the Mississippi River Flood-Control Plan, authorised by Congress, it has been found necessary to divert the important Missouri Pacific Brownsville—New Orleans line on to a high level track which is being carried for no less than 3½ miles in the vicinity of Morganza on a continuous concrete viaduct, now nearly complete. This heavy undertaking comprises the driving of 736,000 cu. ft. of foundation piles, and the use of 50,400 cu. yd. of concrete and 5,125 tons of reinforcing steel. Construction has been carried out by two large gantry cranes, operating on temporary tracks on either side of the viaduct, and thus straddling the entire job. The reinforcing steel has been assembled on flat wagons, which were moved from stock-pile to stock-pile for the workmen to select the necessary rods. On completion of the assembly, each car was run to the site, and the frame then was lifted by the gantry crane and deposited into the steel mould for the pouring of the concrete. All the moulds or forms, whether for footings, uprights, or span slabs, were of steel. Various ingenious methods were used to increase the accuracy, and speed-up the execution, of the work, the cost of which is being defrayed by the Federal Government.

ARGENTINA

British-Owned Railways Returns

The close of the 1941-42 financial year on June 30 makes it possible to estimate the position of the British-owned railways in Argentina, as shown by the aggregate returns on the year's working. It is satisfactory that all the private companies exhibit an increase in their final receipts. The aggregate earnings of the four broad-gauge lines—Buenos Ayres Great Southern Railway, Central Argentine Railway, Buenos Ayres Western Railway, and Buenos Ayres & Pacific Railway—show an increase, as compared with the position a year ago, of 20,685,000 pesos. The B.A.G.S.R. shows a gain of 10,379,000, the C.A.R. one of 5,908,000, the B.A.W.R. one of 3,815,000, and the B.A.P.R. one of 583,000 pesos. It would be erroneous, nevertheless, to interpret these figures as an indication of a definite improvement in their financial situations. This is made clear in a comparative analysis of the revenue returns of the four broad-gauge lines published in "The Review of the River Plate." Taking the five years 1926-30 as representing a favourable period for the railways, and considering the average yearly revenue over that period as a satisfactory norm by which to measure any other year's receipts, in the case of the C.A.R. a total for such an average year of 141,822,737 pesos compares with the approximate receipts of that company of 92,000,000 pesos for the year ended June 30 last. The same basis of comparison applied to the B.A.G.S.R. gives the 1926-30 average of 144,447,000 pesos, as against the approximate result for 1941-42 of 126,000,000 pesos. Similarly, the B.A.W.R. 1926-30 annual average of 54,622,000 pesos compares with this company's 1941-42 revenue result of approximately 45,000,000 pesos, and the B.A.P.R. earnings of 93,308,728 pesos with the approximate revenue returns for the last financial year of 76,000,000 pesos. Bringing the comparison more up to date by taking instead a yearly average over the period 1931-35, the position of these four companies is as follows:—

	Yearly average of revenue 1931-35	Approximate revenue for year ended June 30, 1942
	pesos	pesos
C.A.R.	109,465,059	92,000,000
B.A.G.S.R.	119,648,000	126,000,000
B.A.W.R.	40,743,000	45,000,000
B.A.P.R.	71,805,762	76,000,000

Thus, although showing an improvement on the preceding financial period, the 1941-42 Argentine railway year, as compared with the more or less normal 1926-30 average, was nevertheless a poor one from the revenue standpoint. Compared with the markedly less-favourable 1931-35 average, the past year shows an improvement, with the exception of the Central Argentine, the latest approximate revenue figures for which are still below even that reduced level. When to diminished receipts are added the difficulties created by the scarcity, and enhanced cost, of fuel and other materials, and unsatisfactory working conditions and exchange losses, it will be seen that the financial situation of the British-owned Argentine railways affords small grounds for optimism. Nor has the position in any way been alleviated by the increased tariffs recently authorised, as these are merely temporary concessions granted by the Government to enable the companies to suspend the wage retentions and to comply with their financial obligations to the railway pension fund.

Railway Pensions

The Argentine Government has appointed a special commission to examine and report on the effects which would be felt by the railway pension fund if the decree of April 24, 1941, suspending the granting of new pensions, pending the discussion by Congress of the proposed amendments to the Pension Law, be rescinded. This is in response to a petition of the railway unions asking for the repeal of the Decree in question. The commission consists of the Chief Accountant of the Ministry of Public Works, and representatives of the National

Accountancy Department, the Railway Pensions Board, and the Railways Bureau.

BRAZIL

Paraná-Santa Catharina Railway

Tenders have been invited for the building of a line of 64 km. from Joaquim Murtinho to a paper factory situated at Monte Alegre. Contractors are required to deposit in the Bank of Brazil a sum of money equivalent to the price of 250 km. of rails and 50 sets of points, and the work must be completed within two years from the date of commencement.

Another New Line

In the Federal budget for the current year a sum of 6,000 contos of reis is earmarked for the continuation of the connection between Palmera dos Indios and Colegio, in the State of Alagôas. This line is to form part of the Great Western of Brazil Railway system, and constructional work is under the supervision of the National Department of Railways. Operations are being intensified, and earthworks are completed up to Campo Grande, some 40 km. distant from the terminal point of Colegio, on the bank of the River São Francisco. The route of the line is *via* Olhos d'Aguas do Acioli, Arapuaca, and Lagôa da Canôa; station buildings at the first two places already have been completed.

SPAIN

Patent Fuel with Cement

The coal from the mines of Asturias (which supply the greater part of the locomotive fuel in Spain) is very friable, and therefore contains a large proportion of smalls and slack. For this reason the Spanish railways have always used a large part of their coal in the form of patent fuel (briquettes). Recently, however, the lack of imported coal-tar products has made it necessary to experiment with other binding mediums, of which the chief is cement. The accepted formula is 4 per cent. cement and 6 per cent. water, and the mass is subjected to a pressure of 250 kg. per sq. cm. In 24 hours the briquette is hard enough for use. In 1940 the Spanish railways used 784,798 tons of briquettes.

Railway Social Services

When the broad-gauge railways were nationalised last year, the whole of the personnel of the companies remained in their posts, and the "social services," such as pensions, family allowances, etc., representing a yearly liability of some 100 millions of pesetas, were taken over by the State. The Spanish railway companies were by no means behind those of other countries in the concessions made to the staff. The Northern Company was the first to institute, as early as 1873, a system of non-contributory old age pensions, and was followed by other companies at later dates. Other concessions, also in force for many years past, are the family allowances (based on the number of children), full pay during illness, medical aid to the employee and his family, savings bank and insurance fund (including interest-free advances) and provision and clothing stores. The yearly vacation with full pay, suspended since the civil war, is now to be restored, and compensation, in the form of extra full pay, is to be given to all those who were thus deprived of their yearly leave of absence. These concessions are quite apart from the advantages offered by the Railway Orphanage, and the Employees' Association, which has its own pension fund, savings bank, etc. They are also in addition to such legal obligations as compensation for accidents. The foregoing information is derived from an article by Señor Antonio Rózpide, Chief Staff Officer of the National System, published in the Madrid journal *Ferrocarriles y Tranvias*.

SWITZERLAND

The International Railway Traffic Bureau

The International Railway Traffic Bureau at Berne, which is concerned mainly with the application of the two international agreements covering goods, and passenger and baggage, railway traffic, points out in its report for 1941 that no additional State or railway administration adhered to the two agreements during the year under review; nor has any member State or administration relinquished membership. This is the 49th yearly report issued by the bureau, and is the first to become available since the war commenced. The bureau has a staff of eleven, and the cost of its maintenance is divided, on the basis of the route-mileage of each one, among the member administrations. The report points out that the contributions must be in accordance with the position obtaining in the various States at the present time, that is to say, taking into account the territorial changes resulting from the war. Thus, no railway mileage is given for Latvia, Lithuania, or Estonia, although these states were members of the bureau before their incorporation in the U.S.S.R. On the other hand, the Ostbahn (Eastern Railway), in Poland, is a member of the bureau; its contribution is paid by Germany. For Yugoslavia and Greece the mileages are shown as previously, due to the various changes which have taken place, which prevent the mileages of the various systems from being fixed for the present. The only country which signed the two international agreements of November 23, 1933, but which has not fulfilled so far the conditions for their application, is Spain; and for that country the old agreements of October 23, 1924, are still in force. Based on the foregoing factors, the approximate total mileage affected by the two agreements of 1933 was, on November, 1, 1941, as follows:—

(1) International agreement relating to railway goods traffic:—

	On November 1, 1941	On December 1, 1940
Railway mileage	152,400	155,300
Road mileage	90	—
Shipping-route mileage ...	350	400

(2) International agreement relating to railway passenger and baggage traffic:—

	On November 1, 1941	On December 1, 1940
Railway mileage	122,000	127,000
Road mileage	1,500	1,570
Shipping-route mileage ...	4,100	4,400

BELGIUM

Belgian National Railways Results

Details received concerning the results for 1941 of the Belgian National Railways (further to those given in our August 7 issue) show that working receipts (fr. 2,440,000,000) together with miscellaneous receipts totalled fr. 2,528,000,000, compared with a figure of fr. 1,639,000,000 for 1940. The State refunded part of the 1940 deficit; the total loss for 1940 and 1941 amounted to fr. 1,222,000,000, and that for the years 1931-39 to fr. 819,000,000, so that the loss for the period 1931-41 totalled fr. 2,041,000,000. This high figure is explained partly by such items as heavy pension payments in peacetime, and partly by circumstances resulting from the war, against which the Belgian National Railways claim compensation either from Germany or from the Belgian Government. To enable the National Railways to cover their most urgent financial needs, the State granted loans bearing no interest and totalling, by the end of 1941, fr. 1,457,000,000; but the setting-off of these loans against the claim just mentioned is reported to be contemplated.

Increases in the cost of materials and other items, as well as of wages and salaries, aggregated fr. 425,000,000 in 1941, of which sum wages and salaries accounted for fr. 315,000,000; a combined increase is foreseen for 1942 of about fr. 600,000,000.

Traffic Position

The traffic performance in 1941 exceeded that of 1940, partly because of the substantial reduction in the number of motor vehicles. In 1938 there were 305,575 motor vehicles in Belgium, of which motor cars accounted for 154,765, and lorries and motor cycles for 84,629 and 67,016 respectively. On April 1, 1942, the total amounted to 41,625 vehicles only, of which 9,192 were motor cars, 29,148 were lorries, and 3,285 were motor cycles. Civilian railway passenger traffic in 1941 reached 69 per cent. of the 1938 volume, an appreciable increase over the result attained in 1940, which was 47 per cent. of the 1938 figure. This result is the more remarkable in that passenger-train performance (inclusive of military trains) reached in 1941 only 40 per cent. of the level attained in 1938. This means that the average occupation of the accommodation offered was much higher, namely, 174 passengers a train in 1941, compared with 96 passengers a train in 1938. In the course of the first ten months of 1941 the National Railways endeavoured to ease the position by introducing a number of new trains and improving connections, particularly as far as the principal trains were concerned; and an appreciable improvement in passenger operation resulted. Later on, however, various factors brought about a change; in November and December, 1941, the shortage of coal compelled a reduction in the number of passenger trains to the level obtaining in May of that year, and to the abandonment of many of the improvements introduced. Goods traffic increased less rapidly during the period under review. The level reached in 1941 was about 70 per cent. of that of 1938, against 65 per cent. reached in 1940. Such commodities as potatoes, livestock, fish, fertilisers, and ores enjoy preferential treatment.

NORWAY

Stations at Oslo

The reorganisation of station accommodation at Oslo, proposals for which were reported in our March 8, 1940, issue, have advanced a step further with the completion of plans for a new station, to be erected on the site of the present East Station, but to be known as the Central Station. It has been decided to retain the West Station in use as a local station, instead of closing it, as at one time was intended; and plans for the proposed double-line tunnel from the new Central Station to a junction with lines from the West Station are completed, and it is hoped to start construction in the near future. This underground connection between the new Central Station and the West Station lines will join the latter at a point slightly west of the West Station. The Central Station is to consist of 12 floors, the lower two of which will provide the station proper; the remaining ten will accommodate State Railways offices. The cost of the building was estimated originally at about Kr. 10,000,000, but now is expected to be considerably more.

British Railways Central Wagon Control

The growth and development of the co-ordinating authority which now directs the use of practically all wagons in the country

A CENTRAL wagon control, officially known as the Inter-Company Freight Rolling Stock Control, was set up in March, 1941, to obtain closer collaboration between the railway companies as the pronounced changes in the flow of traffic, due to war conditions, had caused such wide variation in the numbers and types of empty wagons required in certain localities throughout the country. Before the war, the railway companies operated a "common user" arrangement and each used as its own stock, specified wagons, also covering sheets owned by the other companies, but this arrangement consisted of setting off one wagon of a particular class against another of similar type, so that in effect each company provided—and in peacetime rightly so—the numbers and classes of wagons it needed to meet the traffic originating on its own line. It is interesting to note that the war of 1914-19 brought into being this common user scheme in a limited form, it being gradually developed as additional types of stock were included. The scheme stood the test of time right from the last war until the outbreak of the present war, when a considerable change in the flows of traffic consequent upon increased production, changed conditions of imports and exports, diversion of shipping, and so forth, made the scheme not sufficiently flexible or comprehensive to enable maximum utility with a minimum of empty haulage to be obtained from the wagon resources of the country as a whole. The "common user" arrangement was extended at the commencement of the war to include requisitioned private owners' wagons taken over by the Government, but it was not possible to determine what the allocation between the railway companies should be, and there was no relationship between the demands made under wartime conditions for requisitioned wagons in the various coalfields and the number of wagons actually in the possession of each company at the time of requisitioning.

Problem to be Solved

The railway companies had, therefore, to solve the problem of setting up some organisation to obtain the maximum use of a million and a quarter freight vehicles of varying designs, 408,000 wagon sheets, and 219,000 wagon lashing ropes, to meet the changes in traffic and the increase in the demands made for freight rolling stock. It was decided that both railway companies and requisitioned private owners' wagons should be distributed irrespective of ownership throughout the country according to "proved needs" and the Inter-Company Freight Rolling Stock Control was established to adjust the supply of wagons between the four main-line companies. It acts as a central co-ordinating authority representing all the companies. In order that the Inter-Company Control might have information before it of a standard nature, the railway companies agreed to reorganise the methods of rendering their station daily stock returns so that a uniform procedure throughout the country could be adopted.

The great changes in the dispersal of coal class traffic rendered it necessary for many alterations to be made in the arrangements for the supply of empty wagons to the collieries. The ratio of inland to shipment coal is now very different from what it was in normal times. Full train loads of coal are now worked from Durham to Somerset, Devonshire, Shropshire, and Denbighshire, and from Yorkshire to Somerset, Devonshire, and Cornwall, etc. Had it not been for the requisitioning of private owners' wagons, which allowed for the common control of these vehicles, there would have been very little scope for this development, as it would still have been necessary for the collieries to continue loading to destinations in accordance with wagon ownership. Over half-a-million privately-owned wagons, belonging to more than 4,000 different owners, became available for use interchangeably with railway-owned wagons when the former were requisitioned by the Government. Before being taken over, most of them were used for coal-class traffic and sorted according to ownership for return empty to specific collieries.

Object of Requisitioning

The object of the requisitioning order was to increase the utility of the available wagon resources of the country—both railway-owned and privately-owned—reduce empty and cross haulage and minimise shunting operations, by permitting general use irrespective of previous ownership, lettering, or location. Before the war, the railway companies provided relatively few wagons for coal-class traffic, as they were not generally under statutory obligation to do so. It was therefore necessary to decide the best arrangements to put into operation in order to—

(i) facilitate the distribution of wagons, irrespective of previous ownership, amongst the coalfields, having consideration to the varying demands placed upon them under total war conditions and their ability to produce and supply coal efficiently in the national interests;

(ii) arrive at a proper basis for the equitable supply of wagons amongst the collieries in each coal district according to the conditions prevailing at the time;

(iii) reveal the number of empty requisitioned privately-owned wagons and railway-owned end-door coal wagons available for distribution to collieries at all terminal points (including ports), also in traffic yards and marshalling yards in the country each morning.

In collaboration with the various coal owners' associations, an ingenious scheme was devised for the purpose of regulating the supply of empty wagons to coalfields and individual collieries. The basis of it is that a colliery is allowed a varying standage of wagons equivalent to one-and-a-half times the average number forwarded loaded daily the previous week (the extra half-day's allowance was to give a flexible availability) calculated by dividing the total number despatched by 5½ (5 days for Monday to Friday and half a day for Saturday), but if, for any reason, a colliery is idle on any day or part of a day the divisor is reduced accordingly (part of a day is treated as one day), and the wagons forwarded loaded on those days eliminated from the calculations. Additional wagons are allowed to compensate for wagons used for internal purposes, under or awaiting repairs, or received under inward load. Empty wagons are supplied in sufficient numbers to keep the collieries working when this will not result in the loaded and empty wagons on hand exceeding the allowance after taking into consideration the number of wagons expected to be forwarded loaded the same or the following day, but wagons in excess of the allowance are provided to cater for any exceptionally heavy despatches of coal or definite orders in view. If the number of wagons at a colliery exceeds the allowance and there is no prospect of an early outlet for the coal, arrangements are made to restrict the supply of empty wagons bearing in mind the local conditions. The colliery companies furnish to the Railway District Controls concerned daily returns showing the various types of wagons (loaded and empty separately) received, despatched, and on hand, and the number of empty wagons required for loading. The wagons standing with stock coal, under inward load, in use internally, and awaiting repairs are also shown and an intimation is given of stoppages at the collieries for any reason. The figures for each colliery are summarised and totalled weekly to determine the wagon allowance and the terminal user time. The arrangements are sufficiently flexible to enable the supply of empty wagons to be co-related with the loaded wagons despatched from the various coalfields. A reduction in tonnage despatched means that less wagons are provided and an increased output means more wagons are supplied. In the daily application of the scheme, the colliery companies advise the district controls concerned by telephone soon after noon each day of the number of loaded and empty wagons on hand, and the number of additional empty wagons required for use the next day, whilst to obtain the extent of empty wagon availability a record is taken at all stations, works, sidings, and ports at 10 a.m. daily, and the requisite figures are also telephoned to the district control.

In colliery districts the wagons available are supplied to the pits in conformity with the wagon allowance scheme and the district controls advise headquarters of the extent to which the collieries are in excess of, or below, their allowances and the number of additional wagons needed for use the next day or alternatively the number in the district surplus to requirements. In those districts where no pits are situate the district controls advise their headquarters of the number of surplus coal wagons available for despatch to the colliery districts. The headquarters of each railway company then adjusts the stock as necessary between their district controls.

Notification by Companies

The headquarters of the G.W.R., L.N.E.R., L.M.S.R., and Southern Railway advise the Inter-Company Freight Rolling Stock Control every evening of the number of wagons on hand at the collieries and whether in excess of, or below, wagon allowance; the number of empty wagons to be supplied to the collieries next day and the number available for this purpose. Arrangements are then made by the control for the equitable adjustment of requisitioned and railway end door wagons between the railway companies.

Full train loads of empty wagons are now despatched direct to collieries and large numbers of booked trains are running daily instead of individual owners' wagons having to be sorted out specially

and worked from one marshalling yard to another until they reached the particular pits at which they were required by virtue of their lettering or in accordance with the labels.

The wagon allowance scheme was in operation during last autumn and winter and notwithstanding the adverse effect of the lighting restrictions on railway operations and the increase in length of journeys now made, empty wagons reached the collieries on time. The supply of wagons for coal class traffic is maintained with greater regularity than before the war and whilst it was then a frequent occurrence for pits to be stopped because of the absence of wagons, this seldom happens under the Wagon Allowance scheme. Even during the extremely severe weather experienced in January and February this year, there was no interference with the colliery working due to inadequate wagon supply. As many as 330,000 wagons of coal were despatched in one week in the winter and many of them travelled a distance of over 400 miles. The average turn-round of wagons at the collieries—excluding wagons used internally or awaiting repairs—was approximately 1·5 days. It can be definitely stated that the wagon allowance scheme has fully met the hopes of its sponsors and its success can be ascribed to the close collaboration between the railways and the colliery companies.

War conditions have necessitated a great increase in the output of home ore requiring to be conveyed from the quarries to the blast furnaces and a separate pool of requisitioned and railway-owned hopper wagons (suitable for iron ore) was instituted, working under the control of the railway companies and the Inter-Company Freight Rolling Stock Control in conjunction with the British Iron & Steel Federation. The B.I.S.F. intimates each week the contract tonnage to be drawn from each mine and the empty wagon supply is regulated in accordance therewith. The advices enable preliminary arrangements to be made for the maximum number of block trains to run thereby accelerating transit and avoiding unnecessary shunting at intermediate marshalling yards. The empty wagons are returned to the mines either in direct train loads or to selected centres from which distribution is made in train loads according to the requirements at the time.

The co-ordination of effort between the railway companies and the B.I.S.F. in respect of the tonnage to be carried; the collaboration between individual railway companies through the Inter-Company Freight Rolling Stock Control and the interchangeability of privately-owned and railway-owned wagons have enabled the output of ore from the mines to the blast furnaces to be greatly increased. The annual tonnage carried is now 4,000,000 tons or 67 per cent. more than during the peak year of 1937. If measured in ton-miles the increase is 250 per cent. due to the relatively large number of long hauls now involved. The railways are now carrying from the mines to the blast furnaces 220,000 tons of iron ore weekly and the output is increasing.*

The insulated meat vans and insulated meat containers provided for the conveyance of imported meat were not embraced by the old common user scheme and such units belonging to one company despatched loaded to another company were returned empty to the owner. As a result of the change in the flow of frozen meat considerable difficulty was being experienced in meeting promptly the requirements in some parts of the country. The whole of the insulated stock was, therefore, placed under the jurisdiction of the Inter-Company Freight Rolling Stock Control to ensure that the available resources were utilised in the national interests regardless of ownership and according to variations in the tonnage to be conveyed from different originating points in all parts of this country. A return is compiled by all ports and cold store depots at 8 a.m. each day showing the insulated meat vans or containers required for use the same day and two following days and the stock then available or known to be *en route*. In addition particulars are given of the insulated units despatched loaded the previous day so that they may be followed and got back to the ports as quickly as possible.

* Excluding forwardings from North West Coast, Cleveland, and coal measures

Daily Consultations

Associated with the Inter-Company Freight Rolling Stock Control and domiciled in the same building are representatives of the Ministry of Food, the Ministry of War Transport (Road Haulage Branch), and of Meat Importers' National Defence Association Limited, and daily consultations take place as to the tonnage of imported meat to be conveyed by rail and road respectively and adjustments are made, as necessary, according to transport available, destinations, tonnage, or to meet any emergency. Since the introduction of these arrangements the requirements for insulated stock have been met adequately at all times.

Many different classes of wagons are used, including ordinary open goods, low-sided, covered, bolster fitted, and so forth, also sheets and ropes, for the conveyance of general merchandise. Each day about 10 a.m. the railway staff at 8,000 stations and sidings prepares a daily freight rolling stock return, and a standard form is used all over the country. The agent at Penzance compiles the return in precisely the same manner as the agent at Thurso. The figures furnished by Liverpool are on the same basis as those submitted by Hull or Avonmouth. The return is divided into two sections. Section "A" reveals in the following form the numbers of the various types of wagons dealt with the previous 24 hours:—

Type of stock	On hand at 10 a.m. yesterday			Received since 10 a.m. yesterday			Forwarded since 10 a.m. yesterday			On hand at 10 a.m. today		
	Ld'd.	Ety.	Total	Ld'd.	Ety.	Total	Ld'd.	Ety.	Total	Ld'd.	Ety.	Total

The inclusion in the returns of the stock on hand the previous day ensure continuity of the figures and provides a key for ensuring their accuracy from day to day. Section "B" indicates the various types of wagons required for use the following day; the extent to which they can be met by empty stock on hand or by the release of inward loaded wagons in time for use next day; or alternatively, the surplus empty wagons expected to be available. The information is furnished as shown below:—

Type of stock	Inward loaded on hand at 10 a.m.	Total required for loading tomorrow	Empty on hand at 10 a.m. today which will be available for loading tomorrow	Inward loaded on hand or expected to arrive which it is anticipated will be released in time for use tomorrow	Wanted additional	To spare

The daily station freight rolling stock returns are sent by the quickest means available—train, telegraph, or telephone—to the appropriate railway district control office to reach there not later than 1 p.m. each day. They are summarised to show the various classes of wagons, sheets, and ropes required, available, and wanted, or spare within the control district and adjustments between different stations as to stock wanted or spare are then made, subject always to any over-riding instruction from headquarters. The district control offices send their total figures to headquarters where they are summarised in turn and any adjustments made in stock necessary between the controls.

The headquarters of each company telephones the summary of the figures for the whole line to the Inter-Company Freight Rolling Stock Control soon after 4 p.m. each day. In the short time of approximately six hours the position for wagons of many varying classes sheets and ropes at 8,000 different loading points spread over 20,000 miles of line is known and the adjustments of stock between the railway companies can be made with confidence by the control.

As the efficiency of the distribution arrangements depends on the information furnished by the stations it is essential for up-to-date supervisory measures to be applied to ensure that accurate figures which correctly reflect the position, are rendered daily. All stations are therefore called on to submit a weekly statement showing separately for each day the number of wagons of the various classes on hand and forwarded (loaded and empty separately) and the number required according to the daily freight rolling stock return. These figures are summarised and published to show the total number of of wagons forwarded loaded, the percentage of wagons forwarded loaded to the number stated to have been required, and the terminal user time. The wagons asked for by the stations are compared with the number actually used so that any excess requisitions may be detected and the standage is compared with the despatches thereby bringing to light any slow working. Quite apart from its supervisory merits the mere compilation of this weekly statement at the stations acts as a deterrent to waste and tends to cultivate analytical thinking. The systematised knowledge obtained is not only of great assistance for supervisory and administrative purposes, but is a good barometer of trade. Well over half-a-million wagon loads of merchandise traffic are despatched every week by the railway companies.

The justification of the Inter-Company Freight Rolling Stock Control was not a saving in staff, but expected improvements in the efficiency of the wagon supply arrangements. There can be no doubt of the success of the new organisation. It can furthermore be stated that as it was no longer necessary under a

central organisation to retain the records and returns of wagons and sheets passing between companies in order to maintain to each company its conserved stock, a considerable saving in staff was made possible. With the interchangeability now possible between requisitioned privately-owned wagons and railway-owned wagons, 100,000 of the former are, without detriment to the coal trade, being used weekly for back loading with suitable traffics, instead of being returned empty direct to the collieries. Empty wagons of all types, irrespective of ownership, are sent to the nearest point at which they are required to load and whenever possible empty wagon trains are made up to avoid shunting at intermediate marshalling yards.

The saving in empty haulage and shunting is enormous. The long rail hauls from collieries to industrial centres taking the place of short trips to the ports together with an increase in other commodities has resulted in a large increase in loaded wagon mileage. During the four weeks ended March 21, 1942, there was an increase of 21·92 per cent. in the loaded wagon miles compared with the corresponding period in 1939 and a decrease of 14·09 per cent. in the empty wagon miles. Under normal conditions an increase in the loaded wagon mileage is reflected in a relative increase in the empty wagon mileage. If an increase of 21·92 per cent. is applied to the empty wagon mileage for the four weeks in 1939 the total empty mileage in the corresponding period in 1942 would have been 150,838,006 or an increase of 44,550,065 over the actual empty mileage, equivalent to over 11 million empty wagon miles weekly.

Destroying Potential Railway Traffic

Some comments on the operation of Ministry of Food transport schemes

(From a Correspondent)

THE editorial in THE RAILWAY GAZETTE of July 24, 1942, deals with an aspect of controlled traffic movement which is seldom mentioned, but which has in it all the elements of a profound revolution of the whole transport and marketing structure of the nation, not only in war but after the war. As that editorial rightly says, the changes now being imposed upon the food industry in particular "give every indication of destroying the national market which is at once the product of the railway era and the basis of railway traffic."

No doubt THE RAILWAY GAZETTE would, without hesitation, accept the general proposition that if such a revolution is essential for the purpose of the war, its post-war effects, however deplorable they might be, cannot be allowed to stand in the way. To take advantage of this willingness to sacrifice everything to the supreme object of winning the war, however, except upon the most adequate proof:

(i) that it is essential for the purposes of war;
(ii) that it will, beyond any peradventure of doubt, achieve its objects;
(iii) that there is no other less drastic means of achieving those objects;

would be a grave offence against the national interest. In the schemes under notice, it is clear that everything depends upon (ii) and (iii). In the absence of adequate proof that the foundations of these assumptions are sound (i) is merely wishful thinking, and the *raison d'être* of the revolution does not exist.

Two Major Schemes

Two major schemes of the Ministry of Food now in full course of development, namely, the Sector Scheme and the Zoning Scheme (which are two separate things) are founded on the broadest generalities, and there is no evidence based (as it should be) on careful calculation to show that either will satisfy (ii); that is, there is absolutely no factual proof that either of these schemes or both of them together will achieve the primary object, which is to save transport. There will be savings in some directions, but there will be substantial increases in others, and, if there is any net saving, there is no evidence that it will be of such an order as to justify revolutionary changes. As to (iii) all the available evidence goes to show that the primary object can be achieved in fuller measure by means much less drastic, much less injurious, both to transport and commerce, than the official schemes.

These official schemes are negative schemes, directed to one feature of transport economics only—the distance factor, and completely ignoring either the time factor or the load factor. Moreover, they leave virtually untouched the fundamental wastes in food distribution, that is, those due to lack of co-ordination of demand upon the transport services. (This was a subject which Lord Stamp dealt with in his speech to the shareholders of the London Midland & Scottish Railway Company in the year 1941). This is an aspect of the matter which can be demonstrated visually in any street in any town in the United Kingdom, day after day. Further, it is a feature which is revealed to the naked eye in goods stations and yards about the country. There are literally hundreds of separate organisations still allowed not only to direct the movement of foodstuffs independently of each other, but also physically to collect foodstuffs from wharves, factories and depots either with their own or hired transport, and deliver them to depots or shops without any regard to what others are doing. This sort of thing the Sector Scheme does nothing to cure: in some directions it accentuates it.

Distance Factor Curtailed

The curtailing of the distance factor, not on any statistical basis, but merely by arbitrarily drawing a line round certain areas of the country, even if it is as fully successful as the authors of these schemes seem to think, is a mere scratching of the surface compared with the savings which the co-ordination of physical transport and distribution would effect. Indeed, there is ample evidence that the Sector Scheme in particular is more likely to increase the number of separate agencies distributing foodstuffs than otherwise, and certainly to increase the use of transport equipment and labour. This is clear from the demand now being made all over the country for additional warehouse accommodation and road distribution services. As to zoning, although it is quite possible to conceive the ultimate necessity for zoning, that should follow, and not precede, co-ordination of the direction of the movement of foodstuffs and of warehousing and distribution. The subject is being approached from the wrong end. Not only will the waste of vehicle strength which is demontrable to-day continue, but there is likely to be increased congestion and confusion at the railway stations, and increased opportunities for pilferage and loss. One simple illustration of the effects of the Sector Scheme is to be found in the break in transit which occurs when goods have to be linked with a particular warehouse. In many cases those warehouses cannot be obtained with railway connection, and the goods arriving at the railway station have to be carted to a town warehouse (often some distance away from the railway station) and back to the station for distribution to the retailer.

Effective Co-ordination

Co-ordination, to be effective, must begin at the shop and be built up step by step towards the source of supply. The economic operating purposes of such co-ordinating policy should be:—

(i) to eliminate waste movement and
(ii) to obtain the greatest density of movement at each stage, that is, the greatest possible payload for each type of transport equipment (railway, coastwise ship, barge, and road vehicle) in relation to carrying capacity.

These objects cannot possibly be achieved by haphazard methods based upon nothing more scientific than the use of a pin and a piece of string to delineate boundaries. They call for nationally planned transport services, giving the necessary flexibility and the necessary balance of traffic. Balance in transport is of paramount importance; destroy the balance and you destroy the structure. That is precisely what the schemes under notice are in danger of doing. If the destruction of the national marketing structure proceeds on these lines, the railways, after this war as after the last, are likely to have to face another period of struggle against conditions which they have not shaped, with nationalisation (already too generally accepted as inevitable) indeed the only remedy for a situation which, quite unnecessarily, will have become desperate.

Lessons of the Schemes

The railways cannot be held blameless for the chaotic position of the transport industry as a whole today (and it is more dangerously so than is generally realised), but one cannot be unconcerned about the great weaknesses on the demand side. If the schemes under notice show nothing else, they show how profoundly the demand for transport can rock the very foundations of the structure of supply, unless the two go together step by step. Vigorous action in both fields would avert a disastrous state of affairs, and would contribute much more and much more rapidly to the national advantage than these present amateur and immature schemes.

SALVAGE OF WASTE PAPER.—The national need for salvaging as much waste paper as possible remains as imperative as ever. Apart from assisting in the reclamation of paper, the greatest possible economy is urged in its use.

Electro-Pneumatic Brake Control for High-Speed Trains

This system is considered to have appreciable advantages for U.S.A. high-speed services

For at least 55 years it has been recognised that by electricity control of the brakes could be made instantaneous and uniform throughout a train of any length. Many systems of doing this have been devised and some used, but it is in comparatively recent years only that there has been any extensive application of the electro-pneumatic system. It has attractions for high-speed services and we reproduce below the substance of some American views on the subject, based on a paper presented by Mr. Joseph C. McCune, of the Westinghouse Air Brake Company, Wilmerding, Pennsylvania, to the American Institute of Electrical Engineers, at the winter convention held in New York from January 26 to 30, 1942.

Straight Air E-P System

A two-pipe system is used on the modern high-speed train; a second train pipe, called the straight air pipe, is added to the usual pipe provided for ordinary pneumatic control and automatic action on break away. The time saved with electrical control is only a matter of seconds, but in an emergency every second is important. The accompanying figures show interesting service conditions.

In Fig. 1 a train is assumed to be still accelerating and to meet with an adverse

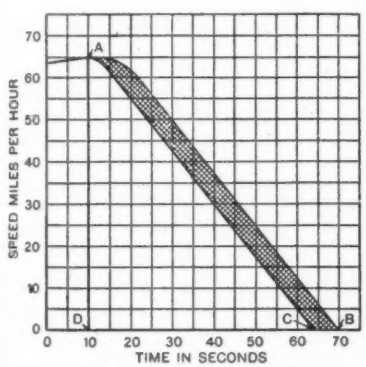


Fig. 1—Saving in stopping distance

signal at *A*, necessitating an immediate service stop. Power is at once shut off and the brake valve placed in the service position. The line *AB* represents the deceleration with pneumatic brakes, and *AC* refers to electro-pneumatic brakes. The hatched area is the saving in stopping distance. This diagram is intended to show only the gain brought about by using electricity; other factors are assumed to remain the same, and the retardation 1·25 m.p.h. a sec. and constant, irrespective of speed and temperature. Internal and wind resistances are ignored. Any saving, of course, decreases with the number of vehicles, but never vanishes entirely. As signal spacing is based on service stopping distances, the situation described is of considerable practical importance. Where station stops are near together a low decelerating force does not permit a train to attain its maximum speed.

In Fig. 2 is shown another frequent situation. An accelerating train suddenly needs a brake application. The application is deferred until the last reasonable moment, but with pneumatic brakes the brake valve has to be moved to service position at *A* —the deceleration is *AB*—whereas with electro-pneumatic control the application can be delayed until *C-CB* is the deceleration line. At *C* the temporary restriction ceases and the brake valve is immediately

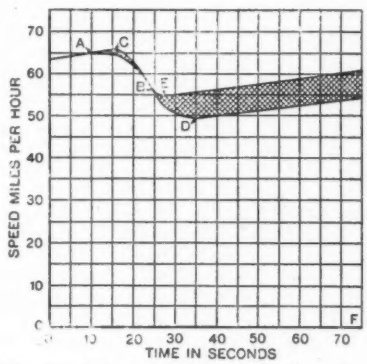


Fig. 2—Effect of temporary obstruction

moved to the release position, but the train continues to decelerate until the brakes are completely released. This occurs at *D* with pneumatic and *E* with electro-pneumatic operation, when acceleration recommences. The hatched area represents the greater distance covered by the electro-pneumatic train in the time *OF*, and at *F* this train is running at higher speed and consequently still gaining distance.

Where the need for brake application and release can be anticipated the savings under discussion, with skilful handling, largely disappear, but there are many occasions where brakes must be applied and released without advance notice and enable electro-pneumatic brakes to contribute materially to the expeditious movement of high-speed trains. In this connection the release function is of particular interest. A long time and a considerable distance are needed to accelerate a train to high-speed and such speed, once attained, should be maintained as long as possible, and slow downs and stops reduced to a minimum. This necessity has been appreciated from the beginning of high speed operation, large sums of money having been spent to eliminate speed restrictions at curves, track intersections, level crossings, and on single lines the crossings of high speed trains have been so arranged that they are not required to slacken. As, however, slacks cannot be completely eliminated, slow releasing brakes introduce an additional penalty because the train speed is brought down below that required. Electro-pneumatic brakes reduce this to the minimum.

Method of Operation

The contacts which control the electro-pneumatic application and release valves on the train are actuated by a slide under the control of two pistons and a spring, so arranged that when the brake valve is moved to a service position pressure is built up against one piston which moves the slide to (say) the right, first closing the circuit to energise all the release valves, in which condition they shut off the straight air train pipe from atmosphere, and then that to the application valves, which allow air to pass from the auxiliary reservoirs to the pipe, on each vehicle. The pressure in the pipe in turn actuates relay valves and what are called supply reservoirs are then connected to the brake cylinders. At the same time the pressure in the pipe acts on the opposing slide piston and when it equals that supplied from the brake valve to the other piston the spring is able to move the slide back sufficiently to open the application magnets circuit and hold the brakes in the condition obtaining. Moving the brake valve to release the pressure on the first piston moves the slide again to the left so as to open the release magnets circuit and, those valves opening, the pipe is exhausted to atmosphere on each vehicle. This in turn operates the relay valves, which vent the brake cylinders to atmosphere. The brake valve is self-lapping, the pressure which it creates on its control slide piston being dependent on its position and alterable, in either direction, in small quantities at will.

Brakes operated in this way can be applied to one half their full service effectiveness in about 2 sec. The action of the circuit control slide is independent of the number of vehicles, a very desirable feature, and any brake-cylinder pressure desired may be easily, positively, and uniformly obtained in a very short time irrespective of train length, or such variables as pipe volumes, brake piston travel or cylinder leakage.

Varying Brake Pressure with Speed

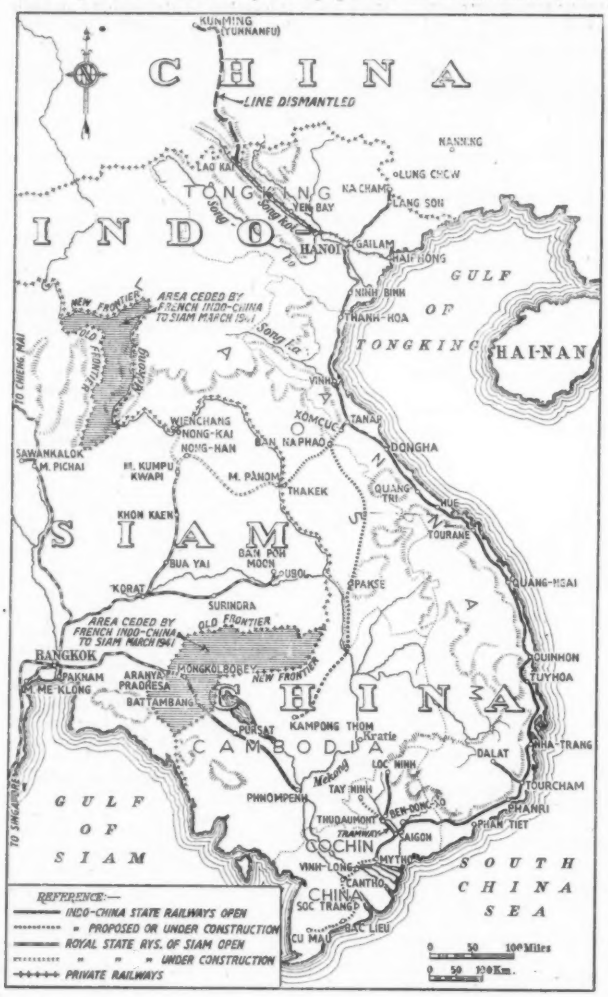
Greater brake-shoe pressure must be employed at the higher ranges of speed and it has been found empirically that if 100 per cent. of this higher pressure is used at over 65 m.p.h., the figure for 65 to 40 m.p.h. should be 80, from 40 to 20 m.p.h. 60, and below 20 m.p.h. 40 per cent. To measure the speed a generator, usually axle mounted, is employed—the output at 100 m.p.h. is about 6 watts—acting on relays which control the circuits of the brake magnet valves. By means of additional windings which are affected by the flux in one relay and react on the effective turns on the relay which is controlling it, the drop away effect is brought close to the pick-up, and in this way the speed range between the two can be brought to not more than 4 m.p.h., and in practice it is usually less.

The avoidance of skidding calls for special precautions and there is little time for them to act. A method used is to apply a generator, then called a decelostat, to each axle. With a freely rolling but braked wheel the braking torque is devoted to destroying the angular velocity of the wheel and axle unit, but the greater portion is balanced by counter torque at the rail. The retarding force at that point cannot exceed the product of the co-efficient of adhesion and the wheel-rail pressure. Should it be near the adhesion limit the wheel will slip if the braking torque should increase abnormally, or the wheel-rail pressure be reduced by oscillation, etc., or a section of bad rail be met and the adhesion co-efficient fall. The wheel then loses angular velocity rapidly, as the torque is now almost entirely directed to arresting the rotary motion. In less than a second the wheel may stop and there must therefore be something to release brake-cylinder pressure quickly. This can be effected by making the generator charge a condenser through a unidirectional relay. In the above conditions the generator voltage must obviously drop rapidly, which enables the condenser to discharge sufficiently to trip the relay. This energises a magnet valve, which rapidly releases the brake cylinder pressure. These refinements, however, are not essential to the electro-pneumatic system of control.

THE RAILWAYS OF INDO-CHINA

A brief outline of their development

INDO-CHINA came into being as a single entity by the amalgamation of Cochin-China, Annam, Tongking, and Cambodia under French auspices at the end of the last century, and there were practically no railways there before 1905. One notable exception was the Saigon—Mytho line in the extreme south, about 50 miles long and now part of the State Railways system, which was opened for traffic in 1885. Before the ceding of territory to Siam and the over-running of Indo-China by the Japanese in 1940, there were



Map of Indo-China showing the railway system

altogether about 1,800 route-miles of railway in the country, of which 1,500 miles were owned and worked by the State and 240 by a private company. All lines are of metre gauge. The Indo-China railways development was largely the work of President Doumer of France.

The State System

The nucleus of the State Railways system is formed by the main trunk line connecting Saigon with Hanoi, 1,080 miles in length, which follows the coast throughout, and connects the main centres of trade and administration in the south and north. The first section of this trunk line to be opened for traffic was that from Hanoi southwards to Vinh, a distance of 199 miles, in the year 1905. The next was the then isolated length from Dongha to Tourane, 108 miles apart and further down the coast, opened in sections between 1906 and 1909. It was not until 1913 that a third section—the 252-mile line connecting Nha-trang with Saigon in the south—was completed and opened for traffic.

To connect the Dongha—Tourane section with Hanoi, construction was begun in 1922 on a fourth section from Dongha to Vinh, 186 miles long, but it was not in operation until 1927. In that year, therefore, there were two continuous sections open, Hanoi—Tourane (493 miles) in the north, and Saigon—Nha-trang (252 miles) in the south, with a gap between them of 335 miles from Nha-trang to Tourane. This gap was closed piecemeal during the thirties as follows: Tourane—Quang-Ngai, opened in 1934; Quang-Ngai—Quinhon, completed in 1935; Quinhon—Tuyhoa, opened early in 1936; and the final 110-mile link from Tuyhoa to Nha-trang towards the close of the year 1936, thus completing the whole 1,080-mile coastwise line from Hanoi to Saigon.

Extensions and Branches

The remainder of the State system is made up of extensions, branch lines, and isolated sections. The Saigon—Mytho line in the extreme south has already been mentioned, and in the north there is a corresponding extension from Hanoi to Lang-son and Na-cham on the Chinese frontier. This was to have been part of a through international line from Hanoi—and indirectly from Haiphong, its port—to Nanning, Kweilin, and Hengchow on the Canton-Hankow Railway. This line was opened from Hengchow to Liuchow and was under construction through Nanning to the Indo-Burma frontier in Chinese territory, when the Japanese broke through to Nanning from the coast. It has since been diverted from Liuchow northwards towards Kweiyang, instead of continuing south-westwards towards Hanoi, so that the Indo-China section from Hanoi to Na-cham remains as a branch line. This diversion, for which track materials of the already-laid sections of the original planned connection with Na-cham were taken up and used, is of standard gauge. Japanese reports from Shanghai now state that under Japanese auspices the connecting link will be built, presumably in Japanese occupied territory, that is, nearer to the coast.

Branches of the State system are (1) from Phan Rang to Dalat, 40 miles, with two rack sections on a gradient 1 in 8, and (2) from Tanap towards Ban Naphao and Thakek on the Siamese frontier south-west of Vinh, completed to Xomcuc, 12 miles.

The Phnompenh—Battambang—Mongkolborey Line

Another important isolated State railway line runs from Phnompenh, the capital of Cambodia, to Battambang and Mongkolborey, mostly in western Cambodia. It was constructed by a private company, opened for traffic in 1933, but bought by the State on January 1, 1936. This line was about 220 miles in length, but with the ceding of territory to Siam, the new frontier cut across it at Battambang, and the remaining 40 miles of railway thence to Mongkolborey fell to the lot of Siam. A gap of about 30 miles then separated the Indo-China railhead at Mongkolborey from the Thailand State Railways' terminus at Aranya-Phadhesa, just beyond the old frontier, but this has now almost certainly been bridged by a Japanese-sponsored rail connection. Its terminus Phnompenh is connected with Mytho by river and Saigon by road only.

Another line runs from Thudaumot, a mile or so south of Ben-dong-xo, to Loc Ninh, to the north of Saigon, connected with that city by a metre-gauge tramway, operated by a private company. Modifications recently made in the demarcation of the Indo-China—Thailand frontier, as a result of the former country ceding considerable territory to the latter, have not affected railways in Indo-China other than the Battambang—Mongkolborey section already mentioned.

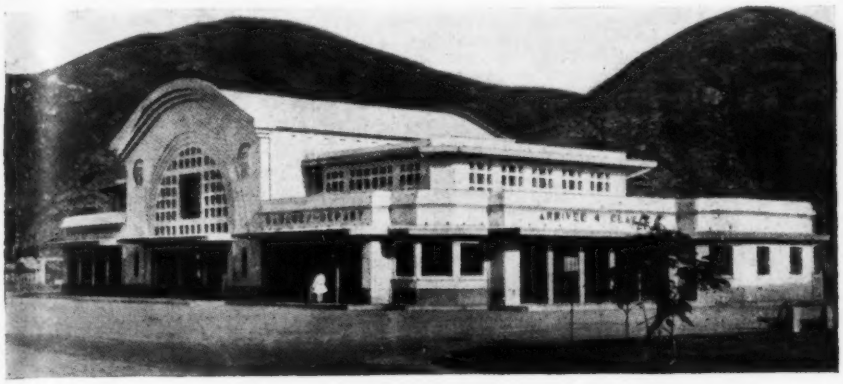
Rolling Stock and Finances in 1940

The most up-to-date information now available shows that the State Railways own 195 tender locomotives, 53 tank locomotives, 6 diesel railcars, 438 coaches, and 2,868 wagons. The coaching stock includes first and second class steel dining and sleeping cars. Locomotives, passenger, and the newest goods vehicles are fitted with vacuum brakes. The headquarters of the administration is at Hanoi, and divisional headquarters are situated at Hanoi, Tourane, Nha-trang, and Saigon. Results of working during the year 1940 were as follow: gross earnings fr. 159,448,860, working expenses

fr. 119,304,250, net earnings fr. 40,144,610, and operating ratio 74·8 per cent.

Privately-Owned Lines: The Yunnan Railway

The most important privately-owned railway is the French Yunnan line from Haiphong and Hanoi to the Chinese frontier at Lao Kai, a distance of 245 miles, and onwards to Kunming (Yunnan-fu) the capital of the Chinese province of Yunnan. The owning company is the Cie Française des Chemins de fer de l'Indo-Chine et du Yunnan, with head offices in Paris. When the Japanese advanced northwards from Haiphong and threatened the Yunnan frontier, the Chinese dismantled the portion of this line in their territory, and the Haiphong—Lao-kai section is now worked as a local branch line.



The railway station at Quinhon

The construction of the whole 534 miles to Yunnan-fu was decided on in 1903 as a means to procure for France the export of minerals from the rich province of Yunnan. From the section of line in that province the French secured an 80-year concession in that year, and the whole line was entirely under their control before the present war. Construction work began in 1904 and was completed in 1910; it proved one of the most costly for this type of railway ever undertaken. This, however, was in the main due to difficulties on the Chinese section, which strictly is outside the province of these notes. The company owned 51 tender, 31 tank locomotives, 8 diesel railcars, 2 petrol railcars, 217 coaches and 958 wagons, 750 of which are 4-wheel, 10-ton capacity, the remainder bogie, 20-ton capacity. It is not known which portions of these have been retained by the Chinese.

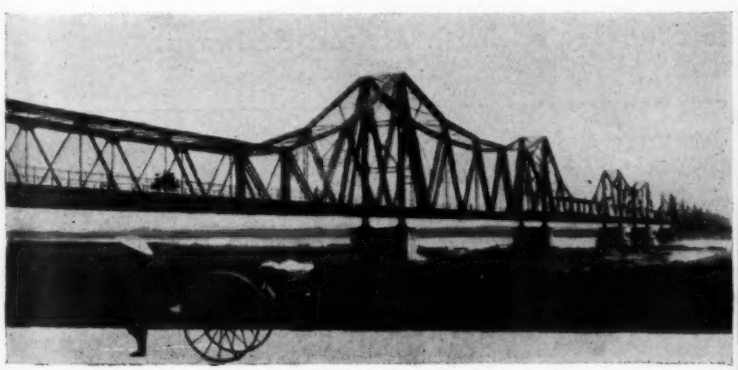
Track and Signalling and Train Speeds

The standard track construction on Indo-China railways consists of 60-lb. 12-metre rails, on steel and wood sleepers, laid 17 to a rail-length (about 2,275 a mile), on stone ballast. Considerable mileage has still the older types of 40-lb. and 50-lb. rails, each 8 m. in length, which are gradually being replaced by the standard type. Minimum radius of curves is 300 metres (15 chains) but there are few curves under 500-m. (25-ch.) radius. The signalling system is simple, on the principal sections the telegraphic block system is in operation, and points are interlocked.

The speed limit on straight sections is 90 km.p.h. (56 m.p.h.). The distance Hanoi—Saigon is covered in 40 hr. 20 min. by daily express trains, at an average speed of just under 27 m.p.h. The fastest train is the Yunnan Railway Company's Hanoi-Haiphong express, which covers the 63 miles in 1 hr. 51 min. at an average speed of just over 33 m.p.h.

Projected Lines

Little information has been available of recent years in this country of progress on new railway constructions in Indo-China. In 1936 the programme of new lines proposed contained two lines in the Saigon area, (1) from Mytho to Cu Mau in the extreme southern promontary of the Indo-China peninsula, and (2) from Saigon to Tay Ninh. No work had been done on these lines up to 1940 as far as is known here. The most ambitious project then on the programme was for an inland trunk line from Tanap, on the main coast route, to Ban Naphao, Pakse, and Kampong Thom, a point about 200 miles north-west of Saigon. This line would be over 400 miles long, and, with comparatively short connections between Kampong Thom, Phnompenh, and Tay Ninh, to Saigon, would give an inland and more direct route from the latter city to Hanoi. The Tay Ninh—Saigon line was actually included in the programme. The only surveys and plans completed, however, are on the Tanap—Thakek section, and of this line only a short section Tanap—Xomcuc, 12 miles long, has been opened to traffic. A bus service is operated from Xomcuc to Thakek; very little railway construction work had been accomplished here before the Japanese invasion. In present circumstances it is probable, however, that railway development in Indo-China will conform to the dictates of Japanese strategy rather than to former peacetime programmes, especially as loss of command of eastern waters would endanger Japanese forces in Burma unless there were good alternative land lines of communication to fall back upon. The Japanese have already announced that the existing gaps will be bridged to assure railway communication between Shanghai and Singapore.



Two views of the Doumer Bridge, Hanoi, across the Red River. It is the longest bridge, 1,850 metres (2,023 yd.), in the Far East

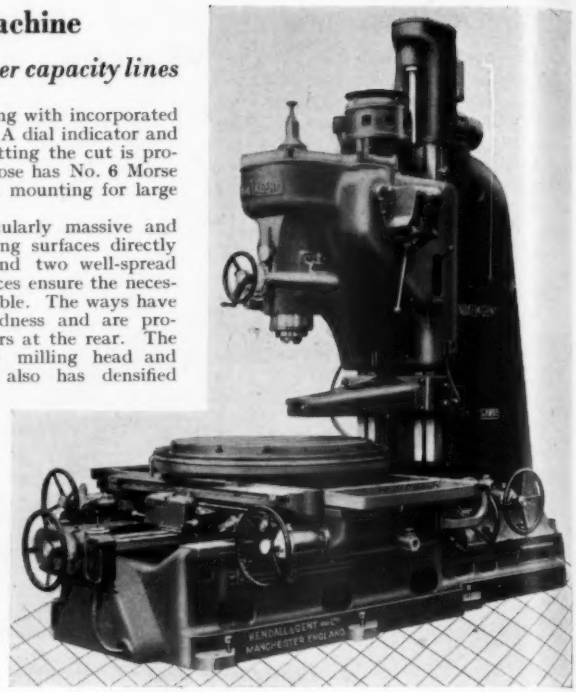
A New Kendall & Gent Milling Machine

Development from a previous successful type on higher capacity lines

THE Kendall & Gent C.V.M. 65 vertical milling machine, illustrated on this page, is similar in design to the same firm's well-known C.V.M. 40 machine, except that its capacity is larger and the spindle motor is vertically mounted on the spindle head. The major castings are rugged in design with sliding surfaces of densified iron; the spindle runs in combination ball and roller bearings housed in a large-diameter densified iron sleeve, and the gears are of high tensile nickel chrome steel sliding on splined shafts. All drives are effectively shortened due to the use of endshield-mounted motors, and speed and feed selections are particularly simple and easy; convenience of control has received special attention.

The spindle head has a speed range varying from 10 to 284 r.p.m. Nine spindle speeds are obtained directly from a single control lever; the speeds are in progression of cutter diameters. On the opposite side of the head, standard pick-off gears give surface speeds from 30 to 80 ft. a min. The head has the drive motor vertically endshield mounted and is elevated by power, under push-button control. Movement is limited in a downward direction by adjustable dead stop and upwards by a safety limit switch. The spindle is of heat-treated high-tensile steel running in ball and roller bearings mounted in a large diameter densified-iron sleeve. The 6-in. range of hand adjustment is effected by a large-diameter handwheel fitted with an accurately graduated dial. Movement is obtained by worm gearing with incorporated anti-backlash device. A dial indicator and adjustable stop for setting the cut is provided. The spindle nose has No. 6 Morse taper cone and B.S.I. mounting for large face cutters.

The base is particularly massive and has its main supporting surfaces directly under the spindle, and two well-spread auxiliary sliding surfaces ensure the necessary stability of the table. The ways have a high degree of hardness and are protected by sliding covers at the rear. The column carrying the milling head and elevating mechanism also has densified ways. It is secured both horizontally and vertically to the base. The electrical gear is built into the column and has an automatic cut-out connected with the inspection door. The feeds are selected by direct-reading dial change operated by cross handle. The sliding gears are of high-tensile nickel chrome and run in an oilbath; the box is fitted directly under the left-hand end of the table, and the direction of traverse is electrically selected. The machine as illustrated is fitted with a circular table with horizontal and transverse traverse in addition to the circular feeds.



General view of the machine

Stewardesses on the Blue Train, South African Railways

Stewardesses who have replaced stewards on the Blue Train of the South African Railways. This train, which makes the fastest run on the Johannesburg-Cape Town route, covers the 1,000 miles in 25¾ hr. The stewardesses have been chosen from numerous applicants; many of them have husbands on active service. They wear tailored white pea jackets with blue epaulettes, soft white shirts, and blue skirts

RAILWAY NEWS SECTION

PERSONAL

The Minister of Fuel & Power has appointed Commander Stephen King-Hall, M.P., R.N. (retired), to be Chairman of the Fuel Economy Publicity Committee. He will be Director of Publicity in the Ministry, and has undertaken these duties in an honorary capacity.

The Hon. F. C. Sturrock, South African Minister of Railways & Harbours, arrived in London on August 20.

Colonel C. H. Hamilton, O.B.E., Chairman of the South African Railways & Harbours Service Commission, has also arrived in London.

The King has awarded the Imperial Service Medal to six employees of the Tasmanian Department of Transport (Railway Branch).

We regret to record the death in Ottawa on June 29, at the age of 81, of Mr. Edward J. Walsh. He was one of the early Canadian railway-construction engineers, and was engaged on the building of the Canadian Pacific line through the Rocky Mountains. Until recently Mr. Walsh was in charge of the Trent Canal Survey, in the Transport Department.

We regret to record the death, at the age of 73, of Mr. Daniel L. Elias, who had been associated with the Great Western Railway for 45 years until his retirement in 1928. He was for many years Stationmaster & Dockmaster at Briton Ferry.

We regret to record the death on August 17, at the age of 69, of Lord Mancroft, who, as Mr. Arthur Michael Samuel, M.P., was Parliamentary Secretary to the Board of Trade and Minister for the Department of Overseas Trade from 1924-27, and Financial Secretary to the Treasury from 1927-29. He was created a baronet in 1932, and was raised to the peerage in 1937.

Mr. T. S. Lascelles has been elected to the board of W. R. Sykes Interlocking Signal Co. Ltd., as a result of the position created by the death of Mr. F. J. Sykes, and has been appointed General Manager. Mr. Lascelles has been in the service of the firm for 33 years and was given the title of Signal Engineer in 1927. He served as a Member of Council of the Institution of Railway Signal Engineers from February, 1925, to February, 1935, since which date he has been its Honorary Treasurer.

Mr. F. J. Sykes, son of the late Managing Director of the company, also has joined the board and has been appointed Engineer to the firm, which he joined in 1928. After passing through the works and drawing office, he became responsible for the planning of contracts and the ordering of materials.

Mr. V. M. Barrington-Ward, D.S.O., Superintendent, Traffic (Operating), Southern Area, L.N.E.R., and Chairman of the R.E.C. Operating Committee, who, as recorded in our August 21 issue, has been appointed Assistant General Manager (Operating) of the London & North Eastern Railway, was educated at Westminster and at Edinburgh University, where he took his engineering degree. He entered the service of the Midland Railway in 1907, and had experience both of construction and maintenance. During this period he was awarded the Miller Prize of the Institution of Civil Engineers for a paper on Bridge Reconstruction, published in the Proceedings. Subsequently he was transferred to the Operating Department, where he received training in all its branches. In 1914 he was appointed Assistant to the Passenger Train Superintendent, in which capacity he assisted personally the then General Superintendent, Sir Cecil Paget, in connection with various problems. At the outbreak of war in 1914, he volunteered, as an ex-Territorial officer, and joined the 11th (Pioneer) Service Battalion, South Lancashire Regiment, in which he held the rank of Captain; but he was transferred, as Major on the headquarters staff, to the Railway Operating Division on its formation in 1915. This transfer was made at the request of his old chief, who had been appointed Commanding Officer. Mr. Barrington-Ward subsequently became Lt.-Colonel, and commanded a large group of operating companies; he was awarded the Distinguished Service Order for gallantry, was mentioned in despatches four times, received the French Croix de Guerre with palm, was cited in French Army Orders, and finally was appointed a Brevet Lt.-Colonel. In March, 1919, he joined the personal staff of Sir Eric Geddes, at the request of the latter; and, on the formation of the Ministry of Transport, he was appointed Director-in-Charge of the Railway Operating Section, on loan from the Midland Railway. In 1922, when the scope of the Ministry of Transport was reduced, he resigned from the Midland Service and joined the General Manager's staff of the North Eastern Railway, and in January, 1923, became District Superintendent, Middlesbrough. In 1927 he was appointed Superintendent, Traffic (Operating), Western Section, Southern Area, of the L.N.E.R., becoming Superintendent of the whole of the Southern Area in 1939. He was largely instrumental in organising and raising the Transportation Troops, Royal Engineers, Supplementary Reserve, and was Lt.-Colonel commanding the Operating Group, Royal Engineers (S.R.), from 1924 to 1928. In January, 1936, he was appointed an Officer of the Venerable Order of the Hospital of St. John of Jerusalem. In 1938 he was awarded the Operating Gold Medal of the Institute of Transport for a paper on "Railway Operation" read before that Institute. Mr. Barrington-Ward was appointed Chairman of the Operating Committee of the Railway Executive Committee on the outbreak of war, which position he will continue to hold.

Photo [*Bassano*

Mr. V. M. Barrington-Ward, D.S.O.

Appointed Assistant General Manager (Operating), London & North Eastern Railway

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Lord Stonehaven, who was a Director of the African Railway Finance Co. Ltd., left personal estate in Great Britain valued at £26,110.

Mr. E. W. Rostern, M.C. Assistant Superintendent (Western Section), Southern Area, L.N.E.R., who, as recorded in our August 21 issue, has been appointed Acting Superintendent, Southern Area, was educated at Aldenham School, and completed his studies at Tours and Düsseldorf. In 1910 he entered the service of the former Great Central Railway, and was selected for special training under that company's higher-grade scheme. During the war of 1914-19 he served in France with the Railway Operating Division; in 1917 he held the position of Liaison Officer to the French Commission de Réseau du Nord. After the armistice he commanded the Railway Operating Company stationed at Cologne, and from March until July, 1919, he was on the staff of the Inter-Allied Railway Commission. He held the rank of Major, Royal Engineers, was mentioned in despatches, and was awarded the Military Cross and the French Croix de Guerre. In August, 1919, he was appointed Assistant Traffic Manager (Operating) at Doncaster, but in February, 1920, he was released to take up an appointment as Railway Adviser on the staff of the Inter-Allied Plebiscite Commission at Marienwerder, East

Mr. E. W. Rostern, M.C.

Appointed Acting Superintendent, Southern Area, London & North Eastern Railway

The late Mr. P. D. Troskie

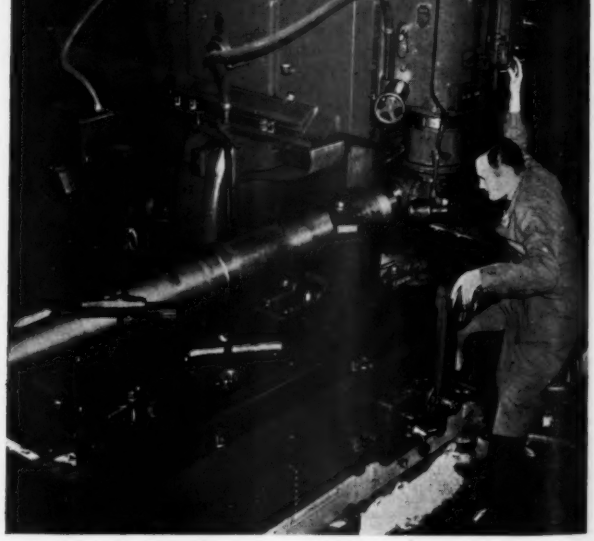
Assistant General Manager (Commercial), South African Railways & Harbours, 1941-42

Mr. P. D. Troskie, Assistant General Manager (Commercial), South African Railways & Harbours, whose death we recorded last week, entered railway service in 1912 in the Assistant General Manager's Office, Bloemfontein. In 1915 he was transferred to Windhoek, where he remained for two years before going to the General Manager's Office, Johannesburg. He was appointed to the Railway Board Office in 1925; and, at the end of 1929, he became private secretary to the Minister of Railways & Harbours, and to the Railways & Harbours Board. Two years later he became Superintendent (Commercial Operating & Staff) in Johannesburg. In 1932 he was transferred in a similar capacity to Cape Town, where he remained until his appointment in 1935 as System Manager, Bloemfontein. He became Chief Superintendent (Staff) at headquarters in December, 1936, and retained this position until 1938, when he was appointed System Manager, Johannesburg. In 1941 he was made Chief Traffic Manager, and then, at the end of the same year, Assistant General Manager (Commercial). Mr. Troskie was a member of the committee of S.A.R. experts who attended the International Railway Congress in Paris in 1937; and, while Chief Superintendent (Staff), he was for two years Chairman of the Railway Conciliation Board.

Prussia, where he was required to report on the problems associated with the movement of traffic through the Polish Corridor. In January, 1924, he became Assistant District Superintendent, Doncaster, where he remained until his appointment in 1932 as District Superintendent, Nottingham. From January, 1940, until June, 1941, Mr. Rostern carried out special duties in connection with train working, with the title of Acting Assistant Superintendent, Southern Area, L.N.E.R.; on the latter date he was appointed Assistant Superintendent (Western Section), Southern Area.

Mr. J. M. Watson has been appointed Managing Director of Ailsa Craig Limited. Mr. Watson served his apprenticeship, 34 years ago, with this firm, to which he now returns with considerable experience of the internal-combustion engine industry. For the last five years he has been Sales Manager of Petters Limited.

A presentation was made by his staff on August 20 to Mr. W. H. Shannon, Passenger & Parcels Agent, Newcastle Central, L.N.E.R., on his retirement after 45 years' service.



The Hon. C. D. Howe, Canadian Minister of Munitions & Supply, inspecting a gun made at a plant operated by Canadian National Railways. Mr. N. B. Walton, Vice-President (Operations), C.N.R., is in background. Right: A naval gun being milled in the works

TRANSPORT SERVICES AND THE WAR—154

Civilian Air Raid Casualties in July

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of July :—

Killed (or missing and believed killed)	368
Injured and detained in hospital	803

The casualties are classified as follow :—

	Men	Women	Under 16	Unclassified
Killed or missing ...	167	160	40	1
Injured	490	257	56	—

Rail Transport of Flowers

Cut flowers, decorative foliage or plants, except plants for food crops and certain classes of nursery stock and flowers for export under licence of the Ministry of Agriculture and Fisheries, will not be accepted by the railway companies for transport by rail on and after November 1. The Minister of War Transport after consultation with the Minister of Agriculture & Fisheries, and with the Department of Agriculture for Scotland, has decided that in view of the heavy demands on the railway companies this winter for the transport of armaments, munitions, coal, and other essential traffic, it will not be possible to provide the locomotives and the rolling stock normally required for the transport of flowers. Last year several hundreds of special trains, together with large numbers of specially fitted vans, were required for the conveyance of this traffic.

Air Raid Damage to a Retaining Wall near Crewe

Next to the difficulties experienced when a tunnel has been penetrated by air raid damage, may be ranked those which arise when a retaining wall is seriously damaged by the action of a bomb. Although the work may be comparatively straightforward, involving rebuilding the wall and refilling behind it, the task often takes some weeks to complete and may prevent the use of running lines in the vicinity. Two illustrations which we reproduce alongside show such a task, which was necessitated by the damage caused by a bomb which fell near Crewe and formed a crater blocking all lines excepting one, and demolishing 55 yd. of a brick retaining wall, which, falling into a cutting, blocked a further track. Apart from the track in the cutting (shown on the left of our pictures), the lines blocked were the down slow, the down fast, a shunting neck, and the up fast; the up slow was slightly damaged by the derailment of a freight train which was standing at the signals. The up slow line was restored in five hours, and the work of filling the crater was then taken in hand. Nine hours after the fall of the bomb the up fast line was available for traffic, and the shunting neck was restored shortly afterwards. On the next day the shunting neck was slewed at each side of the break to connect with the down fast. For repairing the retaining wall the engineers took over the down slow line during the daytime, but handed it back to the traffic department for use during the night. Reconstruction of the wall was carried out in concrete, but, to avoid strutting or shuttering, which would have obstructed the line in the cutting, a brick face was first built and the concrete formed behind it. Thus it was possible to restore traffic on the line in the cutting only five days after the damage. Traffic on all but one of the lines was restored within a few days, and even the remaining line was available to the traffic department during practically all the hours of darkness.

Fish Transport Control

The Ministry of Food is introducing its scheme for the control of fish distribution on October 1. London will continue to draw supplies from all parts, but other places will be compelled to secure supplies from landing ports in their zone, thus limiting the distance of transport. The zones are : Scotland & Northern England ; North-West ; North-East ; East ; South-West ; and Northern Ireland.

Dublin-Limerick Air Line

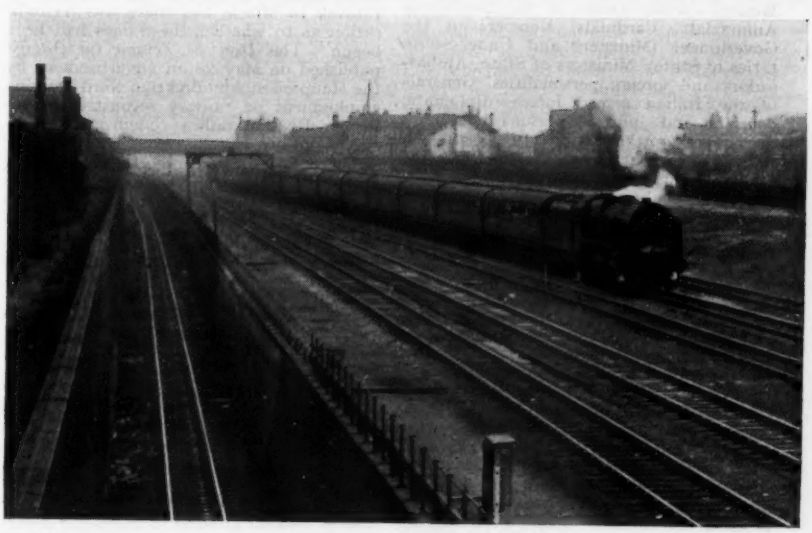
On Wednesday, August 12, the Aer Lingus Teoranta opened a new air line between Dublin (Collinstown Airport) and Limerick (Shannon Airport, Rineanna). It operates on Mondays, Wednesdays, and Fridays. De Havilland four-engined air liners are used. Rineanna is a well-equipped new airport which seems destined to play an important part in international communications in view of its proximity to the Transatlantic air terminus. The inaugural plane carried a box marked " First air mail and passenger flight, Dublin-Berlin, 1932," which is the mascot of the company.

Fare Increase in France

From July 1 railway fares in France were increased by 20 per cent., and goods rates by 10 per cent.

Nordland Railway Extension

The opening on March 20 last to provisional traffic for passengers and goods of the section from Elsfjord to Mo i Rana, a distance of 50 km. (31 miles), completed the Nordland Railway through to Mo. Some account of the progress of the northward extension of this railway since the German occupation of Norway was given at page 535 of our issue of May 1 last. At Mo, the northern terminus of the standard-gauge Nordland Railway was quite close to the Dunderland Railway, and on May 15 last a 3-km. link was brought into use connecting the two. It joins the Dunderland Rail-



Air raid damage at Crewe, L.M.S.R. General view from bridge looking north, showing (above) cranes removing rubble from cutting, and (below) retaining wall restored

way at Tveranes. The Dunderland Railway is the property of the Dunderland Iron Ore Company, a British undertaking working the iron deposits in the Rana Valley, which had a normal output of 155,000 metric tons per annum before the war. The railway extends from Guldsmedvik to Bjornhei (near Nævernes) *via* Tveranes, a distance of 24 km. (15 miles).

Scandinavian Ferries

The Swedish and Danish State Railways have concluded an agreement on the operation of the two ferry services connecting both countries across the Sound. The Malmö-Copenhagen service is to be operated by the Swedish State Railways, and the Elsinore-Hälsingborg service by the Danish State Railways. At present the first service is operated by both administrations alternatively, each having one steamer on this run; the Swedish State Railways have a new vessel under construction for this route. The second service is already being run by the Danish State Railways. The agreement includes the pooling of receipts and expenditure for the two services.

Requisition of Mining Railways in Italy

An Italian Government Decree issued in May last ordered the requisition of equipment and rolling stock of mining railways, mining ropeways, and mining decauville railways for the benefit of the Endirot (Ente Nazionale di Rottami or Scrap National Board), the office controlling the supply of scrap. Among the concerns exempted from registering their railway material and rolling stock are the various State-owned or State-controlled mining enterprises, which are responsible for the main part of the country's mining production.

Sleeping Car Services in Italy

After a period when sleeping car services were wholly discontinued in Italy (except for certain international services such as those between Berne and Rome, and between Italy on the one hand and Germany and Hungary on the other), a few of the most important internal sleeping car services were reintroduced on June 14. The allocation of the berths is governed by priority rules. The Order gives the following particulars of priority: Members of the Italian Royal Family, Court officials, Knights of the Order of the Santissima Annunziata, Cardinals, Members of the Government (Ministers and Under-Secretaries of State), Ministers of State, Ambassadors and foreign personalities, Generals of the Italian armed forces, diplomatic couriers and officers, persons holding a permanent authorisation to occupy a reserved compartment, bearers of the Italian Gold Medal, permanent invalids, senators, members of the Italian Academy, national councillors on service trips, and State officials belonging to the four highest ranks of the services.

Turkish Air Lines

The regular network of air services radiating from Ankara is due to be suspended for the winter on September 1. Last year these air lines were suspended for the winter but were resumed on April 1, 1942, in accordance with the policy of the General Direction of the Turkish State Airways. There are three main routes, namely, Ankara to Istanbul, Ankara to Elazig, and Ankara to Adana. This summer the schedules have comprised one flight each way every weekday between Istanbul and Ankara; return trips between Ankara and Elazig on Tuesdays, Thursdays, and Fridays; and one service each way every weekday, and two on Sundays, between Ankara and Adana.

New Roads in Turkey

During 1941, 645 km. (400 miles) of new strategic highways were constructed in Turkey, and 670 km. (416 miles) of old roads were repaired. Work continued on a stretch of 650 km. (404 miles) on the Trabzon - Erzerum-Iran (Persia) transit route, and on the highways connecting Siirt and Bitlis with Kurtalan, the terminus of the Diarbekr-Cizre line. The Turkish Republic, which began with a total of 17,335 km. (10,722 miles) of roads and highways, now has a network totalling 44,256 km. (27,500 miles), and work on the building of new highways and improvement of old roads continues steadily.

Railways in the Ostland

Rail transport in the Ostland, or Eastern Occupied Territories, has been organised by Germany in three sectors, as we recorded at page 17 of our July 3 issue. The northern sector, with headquarters at Vilna, represents approximately the old Baltic States of Lithuania, Latvia, and Estonia. Before the war of 1914-19 most of the lines in these territories were built to the standard Russian gauge of 5 ft. At the time of the Russian occupation of the Baltic States in July, 1940, the main lines in Lithuania had been converted to 4 ft. 8½ in.; Latvia retained 5 ft., but had also some 4 ft. 8½ in. railways connecting Riga with the main European system to facilitate through traffic between Berlin and Riga; the main lines in Estonia retained the Russian 5 ft. It is not known how much gauge conversion was effected in Lithuania and Latvia during the year of Russian occupation, but as early as mid-November, 1941, the Germans were reported to have converted all Lithuanian and Latvian main lines to standard gauge, as well as the railway from the Latvian frontier to Tapa in Estonia. In January, 1942, it was reported that by the end of November the process of conversion to standard gauge in Estonia had been carried as far as Reval (Tallinn) and Narva, and even to a point some distance east of Narva, *i.e.*, not far behind the Leningrad front.

There have been some vague references in the Continental press to schemes for the construction of new lines, but details are not given. In April there were reports of the construction of two three-track lines from Memel to Libau and from Brest-Litovsk to Minsk, but there was no indication as to whether these lines had been begun. The *Deutsche Zeitung im Ostland* published on May 23 an advertisement by the Haupteisenbahndirektion Nord, offering employment on railway reconstruction to former Russian railway engineers, technicians, and fitters.

There is a serious shortage of rolling stock in Estonia. According to official reports, the losses incurred during the Soviet occupation and the Russo-German War amounted to 70 per cent. of the total rolling stock, including (*a*) on the broad-gauge lines 78 out of 111 locomotives, 2,711 out of 3,476 goods wagons, and 316 out of 352 passenger carriages; and (*b*) on the narrow-gauge lines 56 out of 93 locomotives, 1,364 out of 2,072 goods wagons, and 142 out of 174 passenger carriages. The Russians were able to remove very little, however, from Latvia and Lithuania.

Use of the railways in the Ostland seems to be reserved almost exclusively for the German military and civil authorities. Permits for civilian passenger travel by rail are granted only after careful investigation, and on grounds of proved urgency. On February 8, however, the *Deutsche Zeitung im Ostland* reported an announcement by the Chefgruppe des Wirtschaftsstabes Ost, Berlin, to the effect that goods transport from the Reich to the Eastern Occupied Territories could be accepted, within limits, on receipt of a permit from the Transport Department of the Wirtschaftsstab Ost (parcels, however, could not be accepted). Moreover, according to a Transocean message of May 28, passenger and freight service on the Latvian railways has recently improved to such an extent that more trains are now running on certain lines than was the case in 1939 before the Soviet occupation. The train service between Riga and bathing resorts along the Latvian coast has been resumed this summer (for example, there are now eight trains running daily from Riga to Riga-Strand, and travel permits are not required for this journey). Since May 22, there has been a daily express service between Memel and Riga, *via* Mitau and Libau; this service is expected to relieve congestion on the route from Riga to Shavli (Siauliai) and Tauroggen (Taurage).

Baltic Motor Services

Motor traffic in the Baltic States of Estonia, Latvia, and Lithuania, which form part of the German Ostland, is very strictly controlled, and has been reduced to minimum because of fuel shortage. Producer-gas installations are being used fairly extensively in view of the available supplies of timber. In Estonia, in particular, the Central Transport Board has fostered the extensive use of wood-gas generators for motor vehicles. Motorbus services are gradually being resumed. For example, there is stated to be a daily service now working between Riga and Tilsit; a weekly service between Reval (Tallinn) and Narva; a service from Windau (Ventspils) to Goldingen (Kuldiga) and Trauenburg; and five services during the summer months in the District of Dorpat (Tartu).

Civil Aviation in the Ostland

On November 5, 1941, in co-operation with the Finnish Air Transport Company, the German Lufthansa began a daily air service (excluding Sundays) along the pre-war route Berlin-Danzig-Königsberg-Riga-Reval-Helsinki. The schedule provided for one night's break in the journey each way at Königsberg, the flight to be resumed on the next working day. On November 13 a change in the schedule was announced; the service between Riga and Berlin was reduced to three days a week (Mondays, Wednesdays, and Fridays), while the service from Riga to Helsinki was to run on the three alternate weekdays (Tuesdays, Thursdays, and Saturdays). This schedule appears to be still current.

Railway to Alaska

The United States War Department announced on July 3 that the Army has surveyed about one-third of a proposed railway route to Alaska through Canada to supplement the inland highway already under construction. Engineers working since the early spring with wartime speed and secrecy have mapped in detail some 400 miles of a projected 1,300-mile route linking Prince George, B.C., with the existing Alaska Railroad in the vicinity of Fairbanks, Alaska. Preliminary work is being carried on by the Corps of Engineers, which also is building the highway. Complete co-operation has been received from the Canadian Government. The survey follows in general the "B" route proposed by the Alaskan International Highway Commission, in an almost straight line up the Rocky Mountain trench. The first step taken was a complete air reconnaissance of the route. The survey is scheduled for completion by October 1.

Ministry of War Transport Accident Report

In Falkirk Tunnel, L.N.E.R.: June 18, 1942

On June 18, 1942, a ganger and twenty-four men were preparing for relaying a section of the up line of the L.N.E.R. Edinburgh-Glasgow main line 50 yd. inside the east end of Falkirk Tunnel, which is just west of Falkirk Station and is 836 yd. long. About 11.45 a.m. the ganger gave instructions to cease work for dinner and the men started to walk in a facing (westward) direction along the up line. After they had proceeded some 500 yd. the lookout man in advance of them, relayer A. Mullen, gave warning of an up train and all the men save one went in the direction of the down line. After the train had passed and filled the tunnel with steam and smoke, another entered it on the down line at high speed and it was discovered that Mullen had been killed, together with relayers D. Hossack and R. Williamson, while lengthman T. S. Turner had been injured. Hossack had only seven months' service, but the others had had considerable experience of permanent way work. A lookout man, who had been protecting the gang at the east end, was following the men and duly repeated Mullen's warning. He then took up a position on the down side against the wall, with the ganger, but neither heard the down train coming, owing to the smoke and steam, and he thus gave no warning of its approach.

Mr. J. L. M. Moore inquired into the accident and found no blame attached to this man on that account, neither was there excuse for the men who were struck. Warned of the up train their duty was to have placed themselves immediately in positions of safety, clear of both tracks, and remained there until they could either see or hear that it was safe to move. Practically all the men were carrying lamps and movement of the lights showed that some men did not take up positions against the wall on the down side but continued to walk there in the same direction as the traffic. It is not known whether any of those struck were doing this, or took up positions of safety and left them prematurely after the up train passed, but the latter is thought the more probable. In either case they took a grave risk and must be held individually responsible. The men were no doubt hurrying, to make the most of their dinner hour, and Mr. Moore thinks it possible that they may have lost some of the sense of alertness, necessary when walking to and from their work, from having worked for some weeks under continuous protection. Both lookout men were endeavouring to continue their protection although not called on to do so. Such men would have to pay as much attention to where they were walking as the others and could not be relied on to give warning. The driver of the down train was aware that work was in progress in the tunnel and was emphatic that he whistled on entering it. He was supported by his fireman and there is no reason to disbelieve him. Noise from the up train no doubt prevented the whistle from being heard. There was ample space for the men to stand in safety on either side of the tunnel. The men who moved to the down side gained nothing by it; had they remained on the up side they could have resumed their walk had they wished in comparative safety as soon as the up train had passed.

The Belgian National Railways in 1940

A report issued recently by the management on the working of the Belgian National Railways during 1940 gives some interesting particulars of the results of the German attack and occupation. From May 10 until July 31 the Belgian railways were run by the Belgian military authorities, after their surrender by the German Wehrmacht. On August 1 the management resumed control under German supervision. During the eighteen days of hostilities up to May 28, 213 members of the staff were killed, and 398 were wounded, while on duty. An aggregate of 60 km. (37 miles) of main-line tracks, and 11 km. (7 miles) of sidings, were destroyed completely, and extensive damage was suffered by many miles of permanent way. Either destruction or severe damage was sustained by 292 bridges, 60 over-bridges, and 10 tunnels. Some 81 stations and other buildings were destroyed, and 516 were more or less damaged; 31 signal cabins were wrecked and 380 were damaged, 21 electric, and 10 mechanical, station signalling systems were destroyed, and practically all the telephone, telegraph, and block circuits were put out of action; 40 water-supply systems and eight turn-tables were rendered useless.

By the end of 1940 all but 118 km. (73 miles) of track had been restored, 112 bridges had been repaired (and a further 154 temporarily so) as well as 136 buildings. The wrecked signalling systems were still undergoing reconstruction, but 336 of the damaged signal cabins were again in operation, telephone, telegraph, and block circuits had been re-instated, and all water-supply plants and turntables had been repaired.

A great deal of rolling stock still was "missing" by the end of 1940, namely, seven locomotives, 950 coaches, 195 vans, 35,935 wagons, and 551 brake vans. No figures are given of the number destroyed; but it is stated that over one-third of the 1,829 containers in service in May were wrecked as the result of hostilities. The railway workshops were disorganised; machines were wrecked, and tools and stores destroyed, before the retreat of the Belgian Army. This equipment was nearing replenishment towards the end of the year. (When war broke out the Belgian railways owned 4,600 locomotives, 7,200 coaches, 1,200 vans, 120,000 wagons, and 5,700 brake vans).

The route-mileage of the Belgian National Railways increased by 40 km. to 4,891 km. (3,040 miles), during the year in question, due to the acquisition of the Nord-Belge, Chimay, and Malines-Terneuzen lines, offset by the German seizure of the Eupen and Malmédy lines. The number of staff increased from 72,556 to 76,949 due to the same cause; the Belgian staff of the Eupen and Malmédy lines remained in the Belgian National service, although transferred to other districts. A large proportion of the staff had been withdrawn with the retreating armies, and, after the surrender, many went to France; but by August 1 a sufficient number had returned to their posts for more or less normal operation to be resumed. From May 10 until August 1 there were no organised passenger or goods services, and from the latter date all special rates and fares were abolished, with the exception of workmen's and school children's fares; all parcels traffic and all container transport were suspended at the same time. Later in the year special rates for fuel, ores, stone, and fertilizers were re-introduced, and international traffic was resumed with Holland, Germany, and Occupied France.

Operating figures for 1939 and 1940 (excluding the May–July period of the latter year) were as follow:—

	1939	1940
Passenger train-km.	55·3	22·7
Goods train-km.	22·2	12·3
Total train-km.	77·5	35·0
Passengers (Number)	175·1	87·7
Goods (Tons)	65·3	37·4
	Fr.	Fr.
Passenger receipts	782·3	378·3
Goods receipts	1,742·3	1,169·0
Miscellaneous receipts	89·9	91·7
Total receipts	2,614·5	1,639·0
Wehrmacht requisition	—	104·3
Net receipts	—	1,513·5
Operating expenses	2,633·5	2,312·9
Deficit	19·0	673·9

(Figures are shown in millions)

Of the operating expenditure for 1940, an amount of fr. 1,515·4 million is on the staff account, and the size of this amount was caused by the payment of all salaries and wages throughout the May-July period. The Belgian Government is to refund fr. 104·3 million paid to the Wehrmacht, as well as fr. 200 million for war-damage repairs and such further sums as will be spent on these in future.

New South Wales Railways Training School

A shortage of man power and a rapidly increasing volume of traffic have created problems for the New South Wales Government Railways, and, to meet the situation caused by the loss of qualified employees, the Commissioner for Railways has introduced a training school for boys who enter the Traffic Branch. The main object of this is to educate them in certain aspects of traffic working in as short a time as possible; they are appointed to stations only when they have absorbed to some extent the railway atmosphere, and have had explained to them the reasons behind traffic-working methods. The course lasts for four weeks, during which time the boys are given both theoretical and practical training in station duties, including the issue and collection of tickets; the receipt of, charging for, accounting for, and despatch of outwards parcels; the receipt, and delivery, of inwards parcels; and, in the case of goods traffic, the recording of truck numbers, contents, stations of despatch, and destination.

To make the study more interesting, arrangements are made for the boys to see work in progress on the cleaning of carriages, the formation of passenger trains, the handling of luggage, and the issuing of tickets and their accounting. Inspections are made also of the telephone train-control centre at the Central Station, the Darling Harbour Goods Depot, and the Enfield marshalling yards. At the end of each week the students are required to report on their experiences, in order that their progress may be observed. During their training they are addressed by the Commissioner for Railways, who impresses on them the oppor-

tunities they have received, and he also sends the following personal letter to the boys' parents:—

Office of the Commissioner for Railways
19, York Street
SYDNEY

Dear Sir,

On the.....your son..... was employed in this Department as a junior porter, and, instead of immediately locating him at a station in accordance with the usual custom, it was decided to place him in a school, with a number of other lads, for special training, in order that they may become acquainted with the duties they will be called upon to perform.

The curriculum for the school provides for tuition in theory, as well as practical experience in station duties, which embrace the issuing of tickets, handling of parcels, collection of tickets on barriers, telephone work, and the usual work entailed at any railway station.

This tuition will extend over a period of four weeks, during which time the boys will be taken to various points of interest, where they will observe the organisation and the working of railway stations. Safety-first methods will be made a special feature of their instruction.

It is the intention to have the boys in class from 9 a.m. to 5 p.m., Mondays to Fridays, and 9 a.m. to 12 noon on Saturdays, but, as they are required to work and be paid for 44 hours per week, the foregoing hours will not make up their full week's work. However, the boys have been informed that between the time of signing-off on Saturday and commencing on Monday they will need to write a report on their experiences, and the knowledge gained, in the previous week. In this way the instructor will be in a position to know to what extent the boys have absorbed the knowledge imparted to them, and will be able to give them further tuition to correct any weakness displayed. By this means the Department hopes to have information at its disposal which will enable it to place the boys in the positions for which they are best suited.

As the object of the scheme is to help the boys in every possible way, I am anxious that it prove a success, and would appeal to you for your support and co-operation in encouraging your son to make a study of the subjects he is being taught in order to assist him in his future advancement in the service.

Yours faithfully,
T. J. HARTIGAN
Commissioner for Railways

Union Representation in the Provincial Bus Industry

The interest which the National Union of Railwaymen has in the representation of employees in certain passenger road-transport concerns may be said to have arisen from two causes. Before 1928 certain railway companies, in particular the G.W.R., operated a number of provincial road passenger services, and those employed were members of the N.U.R. The Acts of Parliament of 1928 concerning road-transport powers of the four main-line companies raised new problems of union representation, engendered largely by the widely-held view that the operation of road services would cause many cross-country and branch lines to become redundant; and the N.U.R. felt it necessary to take an active interest in the matter.

It was not long before the National Union of Railwaymen and the Transport & General Workers' Union realised that lack of co-operation did not further the interests either of themselves or of road-transport employees as a whole; and in 1932 an agreement was reached between the two unions with the aim of ensuring co-operation and of eliminating the active competition for members which hitherto had existed. A joint committee was formed, and this was entrusted with formulating proposals to be placed before the executives of the respective unions; the recommendations of this committee were accepted and made the basis of a policy, details of which were circulated in that year. Broadly, this policy was that, so far as provincial road passenger transport was concerned, one organisation should be left free to work on any specified undertaking, and that the other should co-operate and render assistance where necessary. It was decided that certain undertakings should be regarded as coming within the jurisdiction of the T. & G.W.U., and the remainder within the jurisdiction of the N.U.R. The existing memberships of each union were to be recognised and neither was to try to increase its membership among those undertakings which it had been agreed should be dealt with by the other. Non-unionists subsequently recruited were to be enrolled in the union to which their undertaking was allocated.

Certain undertakings had a number of employees who were members of the National Union of General & Municipal Workers, and the latter retains an interest in one or two provincial concerns, for example, the Western Welsh Omnibus Co. Ltd., in some of the constituent undertakings of which this union possessed members. All three unions have an interest in this company, as many of the pre-amalgamation services were operated by the G.W.R., so that there is a percentage of N.U.R. membership; and finally there are a number of employees belonging to the T. & G.W.U.

Below are given lists of those undertakings which are allocated to the N.U.R., to the T. & G.W.U., and to the N.U.G. & M.W. Reference has been omitted in them to those companies, for the employees of which negotiations are conducted jointly. Apart from Western Welsh, already mentioned, these are Ribble Motor Services Limited, and United Automobile Services Limited (both N.U.R. and T. & G.W.U. jointly).

(1) UNDERTAKINGS ALLOCATED TO THE N.U.R.

Devon General Omnibus & Touring Co. Ltd.
East Midland Motor Services Limited
Hants & Dorset Motor Services Limited
Lincolnshire Road Car Co. Ltd.
Mansfield District Traction Company
Southern National Omnibus Co. Ltd.
Southern Vectis Omnibus Co. Ltd.
Western National Omnibus Co. Ltd.
Wilts & Dorset Motor Services Limited

(2) UNDERTAKINGS ALLOCATED TO THE T. & G.W.U.

Aldershot & District Traction Co. Ltd.
R. Barr (Leeds) Limited
Barton Transport Limited
Bath Tramways Motor Co. Ltd.
Birmingham & Midland Motor Omnibus Co. Ltd.
Bristol Tramways & Carriage Co. Ltd.
J. Bullock & Sons (1928) Ltd.
City of Oxford Motor Services Limited
Crosville Motor Services Limited
Cumberland Motor Services Limited
Eastern Counties Omnibus Co. Ltd.
Eastern National Omnibus Co. Ltd.
East Kent Road Car Co. Ltd.
East Yorkshire Motor Services Limited
Enterprise & Silver Dawn Motors Limited
Hebble Motor Services Limited
Lancashire United Transport & Power Co. Ltd.
Maidstone & District Motor Services Limited
Mexborough & Swinton Traction Company
Midland General Omnibus Co. Ltd.
Northern General Transport Co. Ltd.
North Staffs Associated Services
North Western Road Car Co. Ltd.
Potteries Motor Traction Co. Ltd.
Red & White Services Limited
Southdown Motor Services Limited
South Wales Transport Co. Ltd.
Sunderland District Omnibus Co. Ltd.
Thames Valley Traction Co. Ltd.
Trent Motor Traction Co. Ltd.
United Counties Omnibus Co. Ltd.
United Welsh Services Limited
Venture Transport Co. Ltd.
West Riding Automobile Co. Ltd.
West Yorkshire Road Car Co. Ltd.
Westcliff-on-Sea Motor Services Limited
Yorkshire Traction Co. Ltd.
Yorkshire Woollen District Transport Co. Ltd.
All Scottish Companies.

(3) UNDERTAKING ALLOCATED TO THE N.U.G. & M.W.

Rhondda Transport Co. Ltd.

Staff and Labour Matters

Railway Shopmen—Coach Repairers

The Industrial Court has recently issued its award (No. 1,871) on a claim made by the National Union of Railwaymen for certain coach repairers employed at Longsight, London Midland & Scottish Railway, to be regraded as coach bodymakers Grade I.

Evidence was put before the court as to the qualifications of the men concerned, the nature of their duties and the circumstances of their present grading. Arising out of a request by the court, evidence was also given as to the grades of men employed by the four main-line companies on repairs to coach bodies in traffic as distinct from repairs effected to coach bodies sent in to the workshops, the number of men so employed, their rates of pay, the nature of their duties, and the general arrangements for dealing with these repairs. Reference was also made to the provisions of Award No. 728 and to certain awards of the court as to the grading of workpeople for the purposes of schedule "B" of that award.

The award states that the men concerned are employed as coach repairers and in the view of the court should be so classified. No provision is made in Award No. 728 for such a classification or for the rates to be paid to men employed as coach repairers. From the evidence submitted in the present case as to the classification and gradings of men employed by the four main-line companies on repairs to coach bodies the court is satisfied that provision should be made for such a classification and gradings to which the provisions of notes I and II of schedule "B" of award No. 728 should be applicable. Accordingly in the present case the court awards that the men concerned should be regraded as coach repairers (body work) and having regard to the provisions of notes I and II of schedule "B" to award No. 728 and the qualifications of the four men concerned decide that they shall be classified as coach repairers (body work), Grade I, at a rate of 46s. a week (exclusive of war wage advances) from July 31, 1942.

Railway Wages

Negotiations have been proceeding for some time on the claims of the National Union of Railwaymen and the Railway Clerks' Association for an all-round increase of 10s. a week in the war wage of railway staff, and it has been revealed that during these negotiations the Railway Executive Committee has made an offer to increase the war wages by the following amounts:—

Salaried staff:—

Male adults	£10 a year
Male juniors	£5 a year
Female adults	3s. a week
Female juniors	1s. 6d. a week

Conciliation grades:—

Male adults—4s. a week, except firemen on the first and second years' rate should receive only 3s. 6d., and firemen on the third year scale and upwards, engine drivers, and railway-owned dock staff should receive nothing.

Male juniors, except engine cleaners:—

Age 15	1s. 6d. a week
,, 16 and 17	2s. 6d. a week
,, 18	1s. 6d. a week
Female adults	3s. a week

The N.U.R. referred the offer to a delegate conference which met on August 14 but it was unable to accept it without consulting the members. This is being done and the delegates will meet again on September 1. The Railway Clerks' Association have accepted the offer on behalf of the salaried staff. The A.S.L.E.F. has presented a fresh claim to the Railway Executive Committee for increases ranging from 4s. to 12s. a week in the rates of pay of engine drivers, motormen, firemen, and engine cleaners.

The São Paulo-Paraná Railway, Brazil

THE São Paulo-Paraná Railway was promoted by a group of Paulista farmers established in the north of the State of Paraná with the object of providing a means of access to the Sorocabana Railway, though, at the same time, they viewed with enthusiasm the possibility of taking the line to the banks of the river Tibagy, well beyond the coffee plantations they owned. By a Paraná State Government Decree dated August 2, 1920, they obtained a concession for building and exploiting a railway which, starting from a convenient point on the Jaguariaiva—Ourinhos branch line of the São Paulo-Rio Grande Railway, and passing by Cambará, which proceeds in the direction of Jatahy on the right bank of the Tibagy. In June, 1921, a limited liability company was formed with a subscribed capital of 800 contos, and the ensuing railway took the name of Noroeste do Paraná.

Difficulties, however, arose with the São Paulo-Rio Grande Railway as to the point of junction, and as a result the new company, with the agreement of the Paraná State Government, decided to make a start at a point on the left bank of the river Paranapanema and take the railway direct to Ourinhos on the Sorocabana Railway. On November 25, 1922, by force of a São Paulo State Decree, permission was obtained for the building of a line from Ourinhos to Itaipava on the banks of the Paranapanema, and the work was put in hand.

First Section Opened

The first section, consisting of 22 km. of line, up to Leoflora, was opened for traffic in June, 1924, when the company had already changed its name to São Paulo-Paraná Railway, but traffic had scarcely begun when a revolutionary movement broke out and the revolutionaries took over the railway. Normal working was resumed in January, 1925, and in August of that year a further section of the line was opened to Cambará, at km. 30.

The scarcity of local capital and the financial difficulties arising therefrom delayed for some years further development, and it was not until April, 1928, that the company was reorganised under the auspices of the Companhia de Terras Norte do Paraná, with capital raised by Paraná Plantations Limited, in London. In the same month a contract was made with the Paraná State Government whereby 3,600 hectares of land were to be conceded for every kilometre of line completed and opened for traffic. The success attending the raising of further capital in England was largely due to the decisive co-operation of Lord Lovat, a director of Parana Plantations Limited, and Lazard Brothers & Co. Ltd., of London.

In April, 1929, the first spike on the extension beyond Cambará was driven, and by March, 1930, the line had been extended to Ingá (km. 58). In December of the same year, Bandeirantes station was opened at km. 82, and in 1931 a further 43 km. were opened for traffic. By May 4, 1932, the railhead had reached Jatahy at km. 185, so that 155 km. of line, including bridges over the rivers Cinzas, Laranjinha, and Congonhas, had been constructed in three years, a very creditable performance. During this phase the railway was under the superintendence of Mr. Thomas D. Hamilton; the present Superintendent is Mr. Wallace H. Morton, B.Sc. (Glasgow), A.M.Inst.C.E.

On arriving at the banks of the river Tibagy progress was hampered by natural difficulties and the insalubrious climate of the locality, but in July, 1935, a bridge, 294 m. (964 ft.) long, was completed, and the line on the other side of the river was opened to Londrina, km. 210. It was in January, 1936, that the final extension to Rolandia, km. 237, was completed. From this point, according to the State concession, the railway should have proceeded for a further 90 km.—making a total of 320 km. in Paraná State territory—to a point giving access to the river Ivahy, but at this stage the Federal Government intervened, and suggested that a project should be prepared for the extension of the railway to Guayra on the banks of the river Paraná near the Paraguayan frontier.

Proposed Extension to Paraguayan Frontier

Giving due consideration to the suggestion, the company forwarded its proposals in May, 1937, to the Superior Council of National Defence, as, once the extension had to traverse a frontier zone it was classified as a strategic railway. After long discussion the concession was granted by Presidential Decree, but the contractual clauses elaborated by the Federal Inspectorate of Railways were not accepted by the company. About the time of reopening negotiations, war broke out in Europe, and, with financial co-operation from London no longer assured, the company had to withdraw its proposals.

Meanwhile, the São Paulo-Rio Grande Railway—now the Rêde de Viação Paraná-Santa Catharina—having been forestalled in its junction with the Sorocabana Railway, abandoned the idea of extending its Jaguariaiva branch line to Ourinhos, and has linked up with the São Paulo-Paraná Railway inside Paraná territory.

There are strong grounds for hoping that some solution will be forthcoming from the President of the Republic whereby construction will receive a new impulse under improved technical conditions. Its economic, strategic, and international importance is evident from a most cursory glance at a map of the territory affected. The alignment traverses the north-western area of the State of Paraná and opens up an extensive zone of extremely fertile land suitable for settlement and the most varied agriculture. International relations with Paraguay, favoured by the crossing of the river Paraná, and with Argentina resulting from access to the navigable part of that river, are of the greatest importance to the commerce of all three countries. As a means of rapid communication between the frontier region and the populous centres of Paraná, São Paulo, and even the Federal Capital, this line would be of unquestionable strategic importance, and would, in addition, assure some national influence in a region, hitherto exposed to the infiltration of foreigners, whose predominance is conspicuous by the language spoken, by the customs, and even by the money in circulation.

Swiss Electrification.—Bridges on the Wil—Wattwil section of the Swiss Federal Railways are to be strengthened in preparation for the electrification of this 20-km. single line, which connects the Zurich—St. Gall main line with the Upper Toggenburg district and the Ricken line.

German Privately-Owned Railways in 1941

Details have been received of the financial results for 1941 of a number of German privately-owned railway companies, some of which are given below :—

Bergedorf-Geesthachter Eisenbahn A.G.—Total receipts for 1941 amounted to RM. 4,930,000, of which railway receipts accounted for RM. 4,210,000, and bus receipts for RM. 360,000. Railway expenditure totalled RM. 2,650,000 and bus expenditure RM. 280,000. After allowing for depreciation and allocation to reserves, a net profit resulted of RM. 230,000 ; and the past year's loss balance was reduced accordingly to RM. 1,580,000. The balance sheet shows invested capital at RM. 10,590,000, circulating capital at RM. 3,400,000, share capital at RM. 4,500,000, reserves at RM. 590,000, and liabilities at RM. 7,080,000.

Spreewaldbahn A.G. Potsdam-Lübben.—This company returned for 1941 railway receipts of RM. 427,000, as compared with RM. 359,000 for 1940. Railway expenditure amounted to RM. 410,000, against RM. 321,000 for the year before. RM. 36,000 was allocated to the renewal fund (RM. 35,000 in 1940) and there resulted neither loss nor profit ; a loss balance from 1940 of RM. 193,195 was carried forward.

Ruppiner Eisenbahn A.G.—A net profit of RM. 664,588 was returned for 1941, compared with RM. 876,084 for 1940. A dividend of 6 per cent. was paid (as in 1940) on the share capital of RM. 10,000,000. Railway receipts aggregated RM. 5,220,000, compared with RM. 4,810,000 for 1940, of which passenger and luggage receipts accounted for RM. 2,300,000 (RM. 2,040,000), and goods receipts for RM. 2,730,000 (RM. 2,590,000). Bus receipts totalled RM. 83,000, against RM. 86,000 in 1940. Railway expenditure increased to RM. 2,750,000, compared with RM. 2,510,000 for 1940, although bus expenditure decreased to RM. 43,000, against RM. 54,000 for 1940. Taxation absorbed RM. 1,120,000 (RM. 710,000,) and depreciation of plant absorbed RM. 410,000 (RM. 430,000). A sum of RM. 570,000 was allocated to the railway maintenance fund. The company's invested capital amounted to RM. 19,930,000 at the end of 1941, compared with RM. 19,850,000 the year before ; and the circulating capital was RM. 4,380,000 (RM. 3,850,000).

Rheinische Bahngesellschaft.—This company returned a net profit for 1941 of RM. 607,314, compared with RM. 606,126 for 1940, in spite of the fact that railway receipts rose considerably during the year under review ; passenger receipts increased to RM. 26,110,000, against RM. 24,290,000 in 1940, and goods receipts to RM. 66,700 (RM. 57,600) ; miscellaneous receipts attained the same level as in 1940 (RM. 110,000). Receipts from road passenger services decreased to RM. 1,130,000, against RM. 1,190,000 in 1940. Expenditure showed no appreciable change from the 1940 figures, except that the taxation figure (RM. 3,930,000) was nearly double that of 1940.

Merseburger Ueberlandbahnen A.G.—The net profit for 1941 amounted to RM. 219,000, compared with RM. 220,000 for 1940, after allocation had been made to depreciation and other items of RM. 458,000 (RM. 347,000 the year before). A dividend of 6 per cent. (as in 1940) was paid on the share capital of RM. 3,300,000.

NOTES AND NEWS

Great Southern Railways (Eire).—The Great Southern Railways state that in future the weekly traffic figures will not be published.

L.N.E.R. (Extension of Time Order).—The Minister of War Transport has made the London & North Eastern Railway (Extension of Time) Order, 1942 (S.R. & O., 1942, No. 1528), extending by three years the time limited by Section 8 of the L.N.E.R. Act, 1937, for the completion of the railway in West Ham authorised by Section 4 of that Act.

Scottish Motor Traction Co. Ltd.—Notice is given that the Order of the Court of Session (the Right Hon. Lord Cooper), dated July 31, 1942, confirming the reduction of the capital of this company from £2,750,000 to £2,414,673 15s. by the repayment to the holders of ordinary stock to the extent of 25 per cent. of their holdings, was registered by the Registrar of Companies on August 4, 1942.

Ferrovie Elettriche Biellesi.—This Italian railway owns a system, electrified throughout, of 42 km., comprising the following lines: Biella-Balma; Biella-Cossato-Castellazzo-Masserano; and Castellazzo-Valle Mosso. The company returned for 1941 a net profit of 1,157,626 lire, to which was added the profit balance of former years, amounting to 11,162 lire. The share capital amounts to 18,000,000 lire.

Belgian Transport Results.—Société Financière et Commerciale de Transports d'Electricité et d'Industries (a member of the Electrobel concern), which owns, amongst other undertakings, the Antwerp Tramway Company, returned for the year ended March 31, 1942, a gross income of fr. 15,000,000, compared with fr. 20,570,000 for the previous year. The net profit amounted to fr. 12,830,000, against fr. 19,430,000 for the preceding financial year.

German Cold-Storage Company.—Kühltransit A.G., of Leipzig, Hamburg, and Berlin, owns a number of refrigerator wagons and cold-storage warehouses. The company experienced satisfactory conditions in 1941, particularly in the case of its railway-transport activities. Including the amount carried forward from the preceding financial year, the net profit for 1941 was RM. 249,828, compared with a figure of RM. 247,048 in 1940; a dividend of 6 per cent. was paid on the share capital of RM. 3,000,000. A sum of RM. 69,828 was carried forward, compared with RM. 46,870 in 1940.

Anglo-Argentine Tramways Co. Ltd.—The report for 1941 states that the transfer of the Company's transport assets to the Buenos Aires Transport Corporation was legally concluded on November 21, 1941, against issue of provisional certificates for shares of the corporation of 198,187,172 pesos nominal. A similar transfer of the assets of the company's subsidiary omnibus undertakings will be effected as soon as the value of the assets and the amount of shares to be received in exchange have been agreed with the corporation and the Argentine Government has issued the decree. For lack of funds the corporation was unable to acquire during the year the assets and services of "colectivo" and remaining omnibus undertakings essential to the co-ordination scheme contemplated by the law, for which the owners have been unwilling to accept payment in other than cash. The corporation's services have therefore had to be operated in 1941 against the severe competition that most of these undertakings impose. As a result the company has had no return on the capital of the corporation which the contribution of its assets and of its subsidiary bus companies represents.

Great Southern Railways Shopmen and Electricians.—Applications under Section 10 of the (Eire) Emergency Powers (No. 166) Order, 1942, having been made by the trade unions concerned to the Minister for Industry and Commerce for Wages (Standard Rates) Orders applicable to railway shopmen employed by the Great Southern Railways Company in the County of Dublin and at Limerick, and to electricians employed by the same company at Broadstone bus depot, the Minister has referred the applications to an advisory tribunal, which will hold an investigation on August 31.

Tangier-Fez Railway.—A Decree published in Madrid on August 6, according to a Reuters message, authorises the Spanish Government to take over the shares of the Compañia General Española de Africa, which controls the Tangier-Fez Railway in Morocco. The Government was authorised to take over the shares by the Law of June 15, but the shareholders of the holding company have since offered to transfer all their shares to the State. The Compañia General will continue to exist in its present form, the present proprietors being compensated for the shares they hold.

Permanent Way Institution.—The visit of the Manchester & Liverpool Section of the Permanent Way Institution to the works of the Railway Signal Co. Ltd. at Fazakerley, which was planned to take place on August 29, has been cancelled. The next meeting of the Section will be held in the lecture hall of the Temperance Institute, Southport, on September 26, at 3 p.m., when Mr. O. Humphreys, B.Sc., A.M.Inst.C.E., will deliver a lantern lecture on "The Construction of a New Railway," which will be followed by a discussion. A list of the meetings for the year of this Section was given in our January 30 issue, page 178.

Emu Bay Railway Co. Ltd.—Revenue for the year 1941 of this railway in Tasmania amounted to £100,990. Working and management expenses absorbed £81,313, rates and taxes £5,049, interest £196, and depreciation £7,049, leaving a balance of £7,383, to which has to be added £8 balance from 1940. Interest on the 4½ per cent. irredeemable debenture stock and exchange on such interest required £7,368, leaving £23 to be carried forward. Gross revenue showed a slight decrease compared with 1940 and expenditure remained about the same. During 1941 a considerable amount of defence work was carried out in the workshops to the complete satisfaction of the Government department concerned.

Taxing Free Passes in Canada.—Application to holders of free passes of the special war revenue tax of 15 per cent. on the value of transport tickets was urged in the Canadian House of Commons on July 13 by a number of members. All Canadian Members of Parliament have free passes on Canadian railways. The Conservative Leader, however, argued that these passes should not be taxed, as they were given to members as a Statutory right, and to railway employees and their families as a part of their compensation. Several members advocated the exemption of dependents of ex-servicemen from this tax; servicemen are already exempt. The amendment increasing the transport tax from 10 to 15 per cent. was carried without amendment, but no action was taken regarding the taxation of free passes.

Strade Ferrate Secondarie Meridionali.—This Italian railway returned for 1941 a net profit of 2,600,000 lire (as compared with 2,260,000 lire for 1940 and 1,780,000 lire for 1939) after allocating 9,270,000 lire to depreciation, as against 4,000,000 lire so allocated in 1940. According to the company's report, the consider-

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices Aug. 21, 1942	Prices Rise/Fall
G.W.R.				
Cons. Ord.	43¾	30¾	45½	+ ½
5% Con. Pref. ...	109§	83½	107	—
5% Red. Pref. (1950)	105½	96½	105	—
4% Deb.	113½	102½	108½	+ ½
4½% Deb.	115	105⅝	109½	+ 1
4½% Deb.	121½	112	114½	—
5% Deb.	132	122	127½	—
2½% Deb.	70	62⅜	74½	+ 2
5% Rt. Charge ...	129½	116	125½	—
5% Cons. Guar. ...	128	110½	123	— ½
L.M.S.R.				
Ord.	17½	11	20½	+ ½
4% Pref. (1923) ...	53	33½	53½	—
4% Pref.	68½	48½	69½	—
5% Red. Pref. (1955)	97⅞	77	99½	—
4% Deb.	105½	97	103½	—
5% Red. Deb. (1952)	110½	106½	109½	—
4% Guar.	100	85¾	98½	—
L.N.E.R.				
5% Pref. Ord. ...	3¾	2¾	4	+ ¼
Def. Ord.	2	1½	2	—
4% First Pref. ...	52½	33	52	—
4% Second Pref. ...	19⅜	10	22½	—
5% Red. Pref. (1955)	79½	52	87½	—
4% First Guar. ...	90½	74½	92	—
4% Second Guar. ...	80½	59	81	—
3% Deb.	79½	68¾	79	—
4% Deb.	104	91½	102½	—
5% Red. Deb. (1947)	106	102½	104½	—
4½% Sinking Fund Red. Deb.	103½	99⅞	103½	—
SOUTHERN				
Pref. Ord.	65½	43½	65	—
Def. Ord.	15⅜	9	16½	—
5% Pref.	107	77½	105½	—
5% Red. Pref. (1964)	107	89½	107	— ½
5% Guar. Pref. ...	128	111	123	— 1
5% Red. Guar. Pref. (1957)	114¾	107½	110½	—
4% Deb.	112	102½	107	—
5% Deb.	130½	119	127½	—
4% Red. Deb. (1962–67)	108½	102	108½	—
4% Red. Deb. (1970–80)	108¾	102½	107½	—
FORTH BRIDGE				
4% Deb.	99½	90½	105	—
4% Guar.	99	85¼	103½	—
L.P.T.B.				
4½% "A"	120½	109½	114½	+ 1
5% "A"	130½	115½	123½	—
4½% "T.F.A." ...	103¾	99½	100	—
5% "B"	117	102	114½	—
"C"	46¾	28¾	46	+ 1
MERSEY				
Ord.	24¾	19½	22	—
4% Perp. Deb. ...	100	90	99	—
3% Perp. Deb. ...	73½	63	77	—
3% Perp. Pref. ...	58	51½	59	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	23½	— ½
G. SOUTHERN				
Ord.	14½	5	14	+ 1½
Pref.	17	10	20½	+ ½
Guar.	44	16	41	— 1
Deb.	61	42	65	—

§ ex dividend

OFFICIAL NOTICES

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

OVERSEAS EMPLOYMENT: Civil Engineering Staff is required for the Government Railways in West Africa for the duration of the war or one tour of 12 to 24 months, whichever is the shorter period, with prospect of permanency. Salary: £475 rising to £840. A higher commencing salary may be offered according to qualifications and experience. Separation allowance for married men is £80 on salary of £475. Free quarters and passages, free medical attention:

Nigeria: Section Engineer Grade III.
Gold Coast: Assistant Engineer.
Sierra Leone: Assistant Engineer.

Candidates must be Associate Members of the Institution of Civil Engineers or hold a degree granting exemption from Sections A and B of the Institution's examination and have had practical experience of railway civil engineering work. Applications from students of the Institution who have had the necessary practical experience will be considered. Written applications (no interviews) giving particulars of age, qualifications, experience, and name of present employers, should be sent to The Secretary, Overseas Manpower Committee (Ref. 397), Ministry of Labour & National Service, Hanway House, Red Lion Square, London, W.C.1.

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able increase in depreciation is due to the fact that the system and rolling stock have been exposed to much wear and tear because of the record traffic experienced in the year under review. Train services were operated under difficult conditions, due to the excessive traffic demands. With a view to increasing the traffic capacity certain plants (mainly sub-stations) were reconstructed; and the amount of rolling stock was increased. Working receipts totalled 45,490,000 lire, as compared with 29,700,000 lire in 1940; working expenditure rose from 22,200,000 lire in 1940 to 32,410,000 lire. The rise is said to be due mainly to an increase in wages and salaries, and in the number of employees, and to the general rise in costs. The dividend paid for 1941 amounted to 15 lire (gross) a share of 250 lire, compared with 12.50 lire for the previous year.

Underground Station Gardens.—For the second year in succession Mr. C. A. Andrews (Ealing Common) has won first prize on the District Line in the London Transport Station Gardens Competition. On the Metropolitan Line, first prize was won by Lengthman E. Parris (Canons Park), and, on the Northern Line, by Motorman A. C. Stewart (Colindale). The gardens, many of which are cultivated under difficult conditions, were judged by Mr. T. E. Thomas, General Manager (Operation), and other officers of the board.

Cost-of-Living Index.—On August 1, the official cost-of-living index figure was 101 points above the level of July, 1914, compared with 100 points a month earlier. The rise was due to general increases in the prices of coal. There was no appreciable change in the prices of food (for which the index figure remained at 60 points above the level of July, 1914), or of any other articles covered by the statistics.

Institution of Electrical Engineers.—The session of the institution commences on October 1 each year. Previously the opening meeting for the delivery of the President's inaugural address has not been held until towards the end of October, and the opening meetings of the technical sections for the delivery of the Chairmen's addresses have not taken place until November. It is felt now that it would be an advantage, particularly under present conditions, for the institution meetings to commence earlier, and, in the forthcoming session, the first ordinary meeting will be held on October 1, and the opening meetings of the technical sections will take place in that month instead of in November. Also, as a wartime measure, the major part of December and January, when the blackout is at its earliest, will be left clear of meetings. Details of the arrangements for the first half of the session will be announced shortly.

South African Railway Earnings.—Railway earnings in the Union, from July 12 to August 8, amounted to £3,215,998, compared with £3,030,343 for the corresponding period of 1941.

Canadian National Railways.—Gross earnings during July last were $33,133,000, an increase of $2,477,558 over July, 1941, and operating expenses were $25,400,853, an advance of $4,661,722, leaving net earnings $2,815,835 higher, at $7,732,147. Aggregate gross earnings for the seven months, from January 1, 1942, were $202,548,000, an increase of $35,177,070, as compared with the similar period of 1941, and the net earnings of $45,751,017, showed an improvement of $8,726,495.

Bus Industry Reorganisation.—Details have now been submitted to the shareholders of Tilling & British Automobile Traction Limited regarding the scheme for the voluntary liquidation and reconstruction of the company and the segregation of its assets. This important reorganisation formed the subject of an editorial article at page 691 of our issue of June 26. Two new companies have been formed under the titles of B.E.T. Omnibus Services Limited, and Tilling Motor Services Limited, each for the purpose of acquiring as nearly as possible one half of the T. & B.A.T. undertaking, and the capital of each of these two new companies will on completion of the scheme consist of the same number of shares as the T. & B.A.T. company's present capital, but of one half the nominal amount, namely, 200,000 10 per cent. cumulative preference shares of 10s. each (£100,000) and 4,000,000 ordinary shares of 10s. each (£2,000,000). Inasmuch as it is the intention that each of the controlling companies (the British Electric Traction Co. Ltd. and Thomas Tilling Limited) shall be interested in and control only one of the new companies, the B.E.T., by arrangement with Tilling's, will take all the shares in B.E.T. Omnibus Services resulting from their combined shareholdings in T. & B.A.T.; and Thomas Tilling Limited will similarly take all the shares in Tilling Motor Services Limited resulting from the combined shareholdings. The directors of B.E.T. Omnibus Services Limited are Messrs. Richard Joseph Howley, Sidney Emile Garcke, John Spencer Wills, and Raymond William Birch. The directors of Tilling Motor Services Limited are Sir John Frederick Heaton, and Messrs. Alfred Ralph Wagg, and Walter Wolsey. Under the reconstruction agreement B.E.T. Omnibus Services Limited will acquire the whole of the T. & B.A.T. holdings of ordinary shares in:—

Aldershot & District Traction Co. Ltd.
East Kent Road Car Co. Ltd.
*East Midland Motor Services Limited
East Yorkshire Motor Services Limited
Maidstone & District Motor Services Limited
*North Western Road Car Co. Ltd.
Ribble Motor Services Limited
Southdown Motor Services Limited
Trent Motor Traction Co. Ltd.
Yorkshire Traction Co. Ltd.

Similarly, Tilling Motor Services Limited will acquire the whole of the T. & B.A.T. holdings of ordinary shares in:—

Caledonian Omnibus Co. Ltd.
*Crosville Motor Services Limited
*Cumberland Motor Services Limited
Eastern Counties Omnibus Co. Ltd.
Hants & Dorset Motor Services Limited
*Lincolnshire Road Car Co. Ltd.
Southern Vectis Omnibus Co. Ltd.
Thames Valley Traction Co. Ltd.
United Automobile Services Limited
West Yorkshire Road Car Co. Ltd.
Wilts & Dorset Motor Services Limited

It will be noticed that this involves the transfer of five companies (indicated by asterisks in the above list) from one management group to the other, if reference be made to the membership of the British Electrical Federation and of the Tilling Association as listed in our June 26 issue.

Contracts and Tenders

The following contracts have been placed by the South Indian Railway to the inspection of Messrs. Wolfe Barry, Robert White & Partners:—

Pritchett & Gold & E.P.S. Co. Ltd: 382 glass boxes for train lighting sets.
Edgar Allen & Co. Ltd.: 4 manganese steel distance pieces for level crossings.

The Egyptian State Railways have recently placed the following contracts:—

W. M. Willcox & Co., Ltd.: Spring washers.
North British Locomotive Co. Ltd.: Cylinders.
George Salter & Co. Ltd.: Steam pressure gauges.
B. T. Batsford Limited: Books.
G. D. Peters & Co. Ltd. (for Wilson, Welder & Metals Company): Commutators.

Railway Stock Market

The war news from Russia has induced a more cautious attitude in Stock Exchange markets, and in some directions, values were slightly lower owing to the very small demand in evidence. In no section, however, was any heavy selling reported; the tendency earlier in the week was for attention to centre mainly on British Funds and other high-class investment securities. There was, nevertheless, no increase in demand for home railway debentures, but they were, of course, firmly held, and quotations were maintained, it being realised that yields at current levels must be regarded as comparing favourably with those on other stocks with similar investment merits. In fact, home railway securities generally reflected the inactive market conditions prevailing, and there was, therefore, a slightly easier trend in the junior issues. Nevertheless, when markets develop sustained activity, it would still seem that yield considerations may attract a good deal more attention to this section, including the higher yielding preference issues. As was pointed out here last week, generous yields are also shown by L.M.S.R. 1923 and senior preference stocks, and also by L.N.E.R. first preference and Southern preferred. London Transport stocks moved better, and the "C" received further attention, sentiment having been influenced by the view that, whatever changes may take place in transport organisation after the war, there is unlikely to be any change in the capital structure of London Transport. Whereas there was a better tendency in Argentine and other South American stocks. Brazilian securities after being marked up, have become slightly reactionary at the time of writing. This, however, did not apply to San Paulo, Leopoldina and other railway stocks, but was confined largely to Brazilian Government bonds, sentiment being affected by uncertainty as to whether funds available for debt redemption may have to be diverted to expenditure arising from Brazil's entry into the war. In fact, San Paulo Railway ordinary has gained half-a-point on balance, being 54 at the time of writing, and Leopoldina Railway issues have been well maintained.

In accordance with the general tendency, Great Western ordinary stock was less active, but at 45½ was well maintained in price, while the guaranteed stock and debentures were 123 and 108½. At one time, L.M.S.R. ordinary attracted increased attention, and at 20¼ was the same as a week ago. L.M.S.R. 1923 preference kept the better price of 53½ made recently, but the first preference remained at the slightly lower level recorded a week ago. L.M.S.R. guaranteed was 98½; the yield of slightly over 4 per cent. would appear to be not unattractive, having regard to the good investment merits of this stock. L.M.S.R. 4 per cent. debentures at 103½ also offer a very satisfactory yield. Similar remarks apply to L.N.E.R. 4 per cent. and 3 per cent. debentures, which remained at 102½ and 78½ respectively. This railways's 4 per cent. second guaranteed, which has eased further to 81 at the time of writing, would also seem to be relatively undervalued; the first guaranteed at 92 was unchanged on balance. There was less activity reported in Southern preferred, which, however, held last week's improvement to 65½; the deferred was maintained at 16½. Southern 4 per cent. debentures were again 107, and the guaranteed stock 123. Among London Transport issues, the 4½ per cent. "A" was higher at 115, as was the 5 per cent. "A" at 124, while the "C" further improved on balance from 45⅜ to 46½.

Rather more business was reported in various Argentine railway securities. Central Argentine 4 per cent. debentures improved to 39½, and the 5 per cent. debentures to 38½, sentiment being aided by the improving traffics. B.A. Gt. Southern 5 per cent. preference made the better price of 25½. As already mentioned, San Paulo ordinary was better, while elsewhere, United of Havana debentures rose further to 22. Canadian Pacifics showed an easier tendency.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open 1941–42	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941	No. of Weeks	Aggregate Traffics to date: Totals: This Year	Aggregate Traffics to date: Totals: Last Year	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1941	Prices: Lowest 1941	Prices: Aug. 21, 1942	Yield% (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	16.8.42	17,160	+ 480	33	695,000	603,420	+ 91,580	Ord. Stk.	10¾	3¼	10	Nil
	Argentine North Eastern ...	753	15.8.42	ps. 253,100	+ ps. 59,500	7	ps. 1,488,800	ps. 1,390,700	+ ps. 98,100	"	4	1	4½	Nil
	Bolivar	174	July, 1942	3,970	+ 175	29	31,401	26,867	+ 4,534	6 p.c. Deb.	5	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	16	Nil
	Buenos Ayres & Pacific ...	2,807	15.8.42	ps. 1,335,000	+ ps. 35,000	7	ps. 9,222,000	ps. 9,433,000	— ps. 211,000	Ord. Stk.	7¾	1¾	5	Nil
	Buenos Ayres Great Southern	5,080	15.8.42	ps. 2,192,000	— ps. 291,000	7	ps. 13,631,000	ps. 13,645,000	— ps. 14,000	Ord. Stk.	10¾	3¾	8¼	Nil
	Buenos Ayres Western ...	1,930	15.8.42	ps. 816,000	+ ps. 92,000	7	ps. 5,238,000	ps. 5,213,000	+ ps. 25,000	"	9	2¾	7½	Nil
	Central Argentine	3,700	15.8.42	ps. 1,992,300	+ ps. 377,850	7	ps. 13,350,700	ps. 11,667,550	+ ps. 1,683,150	"	8¼	2¾	6½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	9¾	¾	3	Nil
	Cent. Uruguay of M. Video...	972	15 8.42	18,067	— 817	7	134,934	146,762	— 11,828	Ord. Stk.	9¾	1	5	Nil
	Costa Rica	262	July, 1942	12,761	— 11,815	52	12,761	24,576	— 11,815	Stk.	15½	11¼	13½	Nil
	Dorada	70	June, 1942	17,669	+ 4,469	25	81,215	75,300	+ 5,915	1 Mt. Db.	97	97	88½	6¼
	Entre Rios	808	15.8.42	ps. 298,900	— ps. 100	7	ps. 1,881,600	ps. 2,103,100	— ps. 221,500	Ord. Stk.	6¼	¼	5¼	Nil
	Great Western of Brazil ...	1,030	15 8.42	9,200	+ 1,800	33	325,200	295,400	+ 29,800	Ord. Sh.	11/–	1/–	2	Nil
	International of Cl. Amer. ...	794	June, 1942	$115,937	— $5,230	25	$844,687	$673,300	— $171,387	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	¾	6d.	¾	Nil
	La Guaira & Caracas... ...	22½	July, 1942	6,950	— 1,080	29	44,940	43,245	+ 1,695	—	—	—	—	—
	Leopoldina	1,918	15.8.42	31,697	— 1,275	33	976,199	814,164	+ 162,035	Ord. Stk.	4	¼	5	Nil
	Mexican	483	14.8.42	ps. 254,700	— ps. 13,900	7	ps. 1,968,200	ps. 1,935,900	+ ps. 32,300	"	¾	¼	1	Nil
	Midland of Uruguay ...	319	June, 1942	14,640	— 804	49	167,105	151,608	+ 15,497	—	—	—	—	—
	Nitrate	382	15.8.42	5,975	— 2,718	7	115,541	77,332	+ 38,209	Ord Sh.	66⅛	1¼	3⅜	3⅞
	Paraguay Central	274	14.8.42	$4,119,000	+ $372,000	7	$25,391,000	$25,192,000	+ $199,000	Pr. Lt. Stk.	43/–	29	47½	12⅛
	Peruvian Corporation ...	1,059	July, 1942	79,801	14,251	4	79,801	65,550	+ 14,251	Pref.	6½	1⅛	15¼	Nil
	Salvador	100	June, 1942	c 46,000	— c 10,000	50	c 1,005,172	c 799,683	+ c 205,489	—	—	—	—	—
	San Paulo	153½	9.8.42	40,259	— 1,266	32	1,148,334	1,194,099	— 45,765	Ord. Stk.	52	24¼	53½	3¼
	Taltal	160	July, 1942	6,490	+ 3,310	4	6,490	3,180	+ 3,310	Ord. Sh.	1	6/–	1⅛	Nil
	United of Havana	1,346	15.8.42	56,967	+ 38,538	7	279,086	130,528	+ 148,558	Ord. Stk.	2¼	⅛	3¼	Nil
	Uruguay Northern... ...	73	June, 1942	1,019	— 130	49	14,286	13,960	+ 326	—	—	—	—	—
Canada	Canadian National	23,562	14.8.42	1,563,800	+ 408,400	33	43,567,800	35,753,400	+ 7,814,400	—	—	—	—	—
	Canadian Pacific	17,049	14.8.42	978,000	+ 117,200	33	30,537,000	45,550,000	+ 4,987,000	Ord. Stk.	13⅞	7⅛	11½	Nil
India†	Barsi Light	202	June, 1942	12,908	— 2,467	13	39,600	51,990	— 12,390	—	—	—	—	—
	Bengal & North Western ...	2,090	July, 1942	261,600	— 5,267	18	1,080,300	1,092,128	— 11,828	Ord. Stk.	345	253	349½	5⅛
	Bengal-Nagpur	3,267	30.4.42	281,325	+ 30,419	3	809,550	800,995	+ 8,554	"	101	95⅛	94	4¼
	Madras & Southern Mahratta	2,939	30.6.42	212,550	+ 3,338	13	1,945,373	1,858,969	+ 86,404	"	105 7/16	101¼	99	7⅛
	Rohilkund & Kumaon ...	571	July, 1942	58,275	— 3,099	18	234,300	272,651	— 38,351	"	342	290	351½	4⅛
	South Indian	2,402	20 6.42	179,171	+ 43,616	12	1,376,295	1,113,057	+ 263,238	"	100	87	94	3¼
Various	Beira	204	June, 1942	71,394	—	38	672,109	—	—	—	—	—	—	—
	Egyptian Delta	607	10.7.42	9,878	+ 2,295	15	105,867	67,066	+ 38,801	Prf. Sh.	1½	29/–	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	68	45	37½	9⅓
	Midland of W. Australia ...	277	June, 1942	24,804	+ 8,872	46	254,760	183,856	+ 70,904	Inc. Deb.	90½	86½	89½	6
	Nigerian	1,900	30.5.42	49,805	— 6,156	9	453,619	438,613	+ 34,944	—	—	—	—	—
	Rhodesia	2,442	June, 1942	488,130	—	13	4,306,101	—	—	—	—	—	—	—
	South Africa	13,291	4 7.42	793,090	+ 20,324	15	10,428,739	9,945,447	+ 483,262	—	—	—	—	—
	Victoria	4,774	Mar., 1942	1,339,304	+ 366,183	37	10,425,476	8,391,343	+ 2,034,133	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛ ex dividend

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in pesos